

WAGON ROAD—FORT SMITH TO COLORADO RIVER.

LETTER

OF

THE SECRETARY OF WAR,

TRANSMITTING

*The report of Mr. Beale relating to the construction of a wagon road
from Fort Smith to the Colorado river.*

MARCH 9, 1860.—Laid upon the table and ordered to be printed.

WAR DEPARTMENT, *March 8, 1860.*

SIR: In compliance with the resolution of the House of Representatives of the 15th ultimo, requesting the Secretary of War "to communicate to the House of Representatives the report of Edward F. Beale, esq., relating to the construction of a wagon road from Fort Smith, Arkansas, to the Colorado river," I have the honor to transmit herewith a copy of the paper referred to.

Very respectfully, your obedient servant,

JOHN B. FLOYD,
Secretary of War.

Hon. WM. PENNINGTON,
Speaker of the House of Representatives.

CHESTER, PA., *December 15, 1859.*

SIR: I have the honor to transmit herewith the report of my last expedition, from which I have lately returned. This expedition, commencing, as it did, in the fall of 1858, and being prosecuted on the open plains of the 35th parallel of latitude during the entire winter of 1858 and 1859, affords a striking and gratifying proof of what I have stated heretofore of the route on which I have been employed, that winter offers no obstacle on that parallel to the passage of men and wagons, or travel of any description. During the entire winter my

men were exposed night and day to the open atmosphere, some of the messes not using for the whole journey their tents, and others but very rarely. The winter was said to have been one of uncommon severity, yet, although my men were exposed on their guards at night, and in their duties with pick-axe and shovel in cutting down the embankments of creeks, and with the axe and saw in making bridges, during the day, and to the continual discomfort of a daily march, not one of them had occasion to complain of the slightest sickness during the journey. The country over which we passed was one of the most attractive description. As I have stated to you in a previous letter, a wide and level river bottom is offered as a general line of travel all the way from the last settlements of Arkansas to the first settlements of New Mexico, and, although I did not follow this line exclusively, but frequently deviated from it to take the divide, I do not remember a heavy pull between Little River in Arkansas and the settlements of New Mexico. Nature has supplied the country over which we passed most bountifully with the three great requisites for an overland road, wood, grass, and water. Although I remained in New Mexico for nearly two months, it was not time lost, as I employed myself and a portion of my men in an exploration to the eastward along the line of the Conchas river, which afforded the most gratifying results. On the termination of this exploration, I broke up my temporary camp in February and pursued my journey to the westward.

The broken nature of the country lying immediately west of Fort Smith, Arkansas, occasioned by the approach of the spurs of the mountain ranges, which run for a distance of nearly one hundred and fifty miles beyond the boundary line of the Indian territory to the Arkansas and Canada rivers, renders the construction of a railroad elsewhere than along the valleys of the streams a work of no little difficulty and cost. From Fort Smith two routes have now been reconnoitered; one passing along the head waters of Poteau creek, San Bois, and the south fork of the Canadian, and then crossing to the waters of Boggy river, whence the line descends to the Canadian valley near the site of old Fort Arbuckle; the other traversing the country immediately south of the rivers, but not touching the valleys, and crossing the numerous spurs and several elevated ridges east of the passage of the Canadian at North Fork Town, beyond which the surface east of Little River is even more broken than the more eastern portion of the route. Along either of these lines the maximum grade could not, except at an immense cost, be reduced below fifty feet to the mile, and the tortuous character which would of necessity attach to a line located upon either route would so increase its length that, without considering the increase of distance due to a proper allowance for ascents and descents, it is questionable if upon the score of distance alone it would not be advisable to make the location along the valleys. The general course of the Canadian is remarkably direct between its mouth and the 104th meridian, it never runs further north than the 35th parallel and but once passes below it, and in that instance flows for a distance of about sixty miles parallel to it, and only a few miles below it. A line located along the valley of this stream, from its mouth to the point at which it would leave it near the 104th meridian,

would not exceed six hundred and thirty-five miles in length. There are but few points along the river where any considerable work would be required. East of North Fork Town some few bluffs would offer unimportant obstacles, but west of that point a magnificent valley offers every facility for the construction of a first class road, with very low grades and easy curvature.

The advantages which attach to a route which offers a continuous river valley for so long a distance for its location cannot be too strongly urged; there is every reason to believe that from Fort Smith to the main divide, between the waters of the Canadian and those of the Rio de Las Gallinas, an unbroken ascending grade can be had that will at no point exceed twenty-five feet per mile; the entire ascent from Fort Smith to this point would be fifty-two hundred and sixty-five feet, and as there would be no descents whatever the equated distance would only amount to seven hundred and eighty-five miles of level road. From the divide just mentioned to the Rio Grande at San Felipe the distance would be about ninety-five miles, over a country which would compel the adoption of grades of 52.8 feet per mile, though careful examination might reduce them. Upon this division all the heavy work would occur, comprising the bridging of the Gallinas, the Pecos, and Rio Grande, and tunnelling the summits between these streams; the equated distance from the Canadian summit to the Rio Grande would be one hundred and forty-five miles, making the entire distance (equated) from Fort Smith to San Felipe nine hundred and thirty miles. The road from Fort Smith to San Felipe may be properly divided into three sections: the first extending from Fort Smith to the eastern boundary of Texas; the second to the mouth of the Rio de las Conches near the 104th meridian; the third thence to the Rio Grande. The valley of the Arkansas is similar to that of western streams generally, the highlands alternately receding from and approaching the river—the bottom lands sometimes stretching out for miles—sometimes disappearing and giving place to bluffs; except where it is necessary to cut through these bluffs the work will be very light, the smooth level character of the bottom land offering every facility for easy construction. East of the old trading post known as Choteau's, the valley of the Canadian is very like that of the Arkansas, the bluffs, however, occur less frequently and the liability to overflow seems to be lessened. Going west the tributaries to the main streams diminish in number and size, and if a line be located upon the south bank of the river there would be but two bridges of any size needed. West of Choteau's the valley of the Canadian is very wide, rising very gently and with an almost inappreciable slope from the stream toward the high land; the river itself is small and never apparently leaves its banks; long straight stretches are of frequent occurrence; tangents of from ten to thirty miles in length can be easily laid along the valley; the soil is a light sandy loam that can be easily handled and will form a firm compact road bed; the dryness of the climate will expose embankments to but little loss from washing; the fertility of the soil throughout this region is well attested by the luxuriant vegetation that characterizes the entire valley of the Canadian; wild grape-vines grow in the greatest profusion, not only in the bottoms, but on the

first plateau ; there is but little doubt of the perfect adaptability of this country to the production of wine ; the high lands that bound the river are covered at all seasons with a dense growth of nutritious grasses that will serve for the pasturage of countless herds ; the country throughout this section is well wooded for the most part ; as far as Choteau's oak, hickory, cedar, &c., of large size abound ; beyond, black oak, hackberry and cotton-wood are found, in sufficient quantities to serve for railroad purposes and the wants of settlers, besides, the Washita valley and those of its tributaries will furnish a large amount of similar wood, with a mean transportation not exceeding twenty miles ; the Canadian supplies a large quantity of water fit for all purposes, while nearly every little arroyo that approaches it from the hills on either side is well furnished with ever-flowing springs. The second division of the road follows the valley of the Canadian exclusively to the mouth of the Conchas—the character of the country is similar to that near the Antelope Hills ; about the 104th meridian the valley narrows, but soon opens again, and for fifty miles east of the Conchas offers to the eye a magnificent expanse of bottom land that cannot fail to please both agriculturist and engineer. A good supply of timber is found along this division, water is abundant, and the character of the work is precisely similar to that of the western portion of the first section. At the Angosturas, a short distance east of the mouth of the Conchas, there is an admirable site for a bridge across the Canadian, should the north side of the river be chosen for the road. About this point the Canadian is a clear, free-flowing stream, passing over a beautiful gravel bed, and running between banks of from ten to twenty feet in height ; large groves of cotton-wood and hackberry occur at frequent intervals. Up the valley of the Conches, a tributary of the Canadian, there will be no trouble in finding a favorable line. The valley is large, free from ridges, rising very regularly, and smooth in its surface ; the approach to the divide between it and the Gallinas is very gentle, not requiring a grade of more than twenty-five feet. At the summit a short tunnel will be needed. The site, however, is most favorable, and the material a soft sandstone, easily pierced. The descent to the Gallinas will be regular and easy, at the rate of thirty feet per mile ; a bridge can be easily thrown across this stream with a span of one hundred feet ; the approaches on either side will need but little embankment.

Beyond the Gallinas the country is rolling, and it will be necessary to form a summit near the Chupainas ; the grades approaching it will not exceed forty feet per mile ; the work around will be comparatively light ; it is doubtful whether there would be any rock excavation. An admirable site for a bridge across the Pecos can be found near the mouth of the cañon about five miles above Anton Chico. At this point machine shops, &c., could be advantageously established, as there is an abundance of coal and timber in the immediate vicinity, and a large water-power might be commanded ; good building stone abounds, nor is it deficient at the Gallinas. By crossing the Pecos at this point, rather than at or below Anton Chico, the ascent to the high land in approaching the cañon Blanco is materially lessened. To the cañon the route would traverse a somewhat broken country, ren-

dering grades of about forty feet per mile necessary. At the summit, between the cañon and Gallisteo creek, a short tunnel through an easily excavated material would be needed, and a small amount of moderately heavy work would occur in passing to the Rio Grande. As far as the Lagunas timber is found in abundance, and in descending the valley of Gallisteo creek, mottes of cedar and piñon are frequent, while the mountains in the immediate vicinity possess large forests, which will furnish an endless amount of fuel. Throughout this division of the road there will be no difficulty in procuring the necessary timber for the purpose of construction. Pine, hemlock, and other forest trees of large size abound in the Santa Fé mountain, and along the headwaters of the Pecos and other streams. The construction of a bridge at San Felipe, while a work of no small magnitude, will offer no serious obstacle; three spans of two hundred feet each will be necessary. The bed of the stream is of solid rock, affording the best of foundations for the abutments and piers. Good building stone can be obtained in the immediate vicinity. While a mere reconnoissance does not afford sufficient data for an elaborate and exact estimate of cost, an approximation may be made from notes taken along the route that will not vary much from the amount to be expended in the actual construction of the road—an estimate which it is thought will fully cover all expenditure is appended. It is based upon such knowledge of the country as can be had without the actual use of transit and level instruments. It is true that the sinuosities of the Canadian river might, by those disposed to find fault, be urged against the route, but, when we consider the width of its valley, its gentle rise, the abundant supply of wood and water, the very small cost of construction, and the capabilities of the country for supporting a large population, these form, it must be acknowledged, advantages that are not found to belong, in an equal degree, to any other projected route across the continent. Beyond the Antelope Hills even this objection cannot obtain, for the course of the Canadian is remarkably straight from the one hundred and fourth meridian to that point, and if this portion of the line could be connected with the frontier of either Missouri or Arkansas without too great an increase of cost, the thirty-fifth parallel route would be unrivalled in its claim to consideration. The north fork of the Canadian would probably afford a more direct location than the main stream, and the summit between it and the latter could be crossed without the adoption of objectionable grades. Whether the valley, however, would prove as favorable in other respects is questionable. Such a line would be worthy of a careful examination and comparison with the other. Another route from the southwestern portion of Missouri to the Antelope Hills is worthy of consideration. The country west of the Missouri frontier comprises a series of gently rolling prairies, well wooded and watered, of excellent soil, and not so broken as to offer any serious impediment to the building of a good road with easy grade. No difficult streams would require bridging, and the summits between the water courses could be easily crossed. A railroad connecting the town of Neosha with St. Louis is projected, and will, no doubt, be in a short time constructed. This is a fact of no little consequence in this connexion, and unless the enterprise of

the citizens of Arkansas arouses them to a sense of their position, and efforts are made to connect the flourishing little city of Fort Smith by rail with the east, she may forfeit by the neglect of her people the advantages nature has bestowed upon her. The respective merits, however, of these proposed lines can only be decided by a critical and careful examination by the civil engineer; the level and transit instruments solve difficulties and establish facts in a few days that would defy simple barometric and compass reconnoissances for years. A twelvemonth of careful survey would furnish reliable and accurate estimate for the entire route from the frontiers of the States to California, and in that time an examination could be made of all the branch lines that the expediency of reducing the distances and grades to the lowest limits might suggest. I have already described to you the country lying between the Del Norte and the Colorado river, nevertheless a recapitulation may not be thought unnecessary. Leaving Albuquerque, the first fifty miles is over a country of sandy soil, not very well supplied with timber, but possessing in parts a fair amount of grass; thence to Zuñi grass, wood, and water are found in sufficient quantities. The timber is pine, of the largest proportions, existing in noble forests. Intermediate in this distance, by an exploration to the northward, I made important discoveries of mineral, (copper ore,) and a country of uncommon beauty. This region I have described in my journal, which accompanies this letter, as far as the village of Zuñi, and at it, a distance of one hundred and fifty miles to the westward of Albuquerque. Corn forage may be obtained at short intervals on the road. From Zuñi to the Little Colorado river the country is rolling, and well supplied with wood, water, and grass, and is of a good surface for the whole distance, excepting the wide sandy beds of several creeks, which are at times several feet deep, and at others dry. Arrived on the banks of the Little Colorado, there is before the traveller a wide river bottom, and abundant grass and timber, to the base of the San Francisco mountain. At this point the road ascends to its greatest elevation, through pine forests and magnificent valleys, and by an ascent so gradual that there is but little appearance of it to the eye. From the San Francisco mountain to Floyd's Peak the country is very much of the same character as that between Zuñi and the Little Colorado river, being high and rolling, but not hilly. It is nearly equally divided between open plains, covered with nutritious grasses, and dense forests of pine, piñon, and cedar. Between Floyd's Peak and the Colorado river timber becomes scarcer, although there is still a great abundance until within forty miles of the river, when the country assumes a barren and sterile appearance. Among the important discoveries made during this exploration was the existence of the finest quality and abundant quantity of timber in a mountain, which I called on my first expedition "Harry Edwards' mountain," and which is not over forty-five or fifty miles from "Beale's crossing" of the Colorado river. I cannot conclude this letter without urgently calling your attention to the imperative necessity of building a bridge across the Rio del Norte, at or near Albuquerque. This is a military, civil, and emigrant necessity. In support of this assertion I have the honor to enclose you the replies of distinguished officers of the army,

serving in New Mexico, and thoroughly acquainted with the subject, to the committee of a public meeting held in Albuquerque for the purpose of considering this matter. They are marked as follows: A, B, C, and D. I also desire to call your attention to the itinerary which accompanies this letter. It is in itself an abbreviated history or description of the country from Arkansas to California, by which an emigrant may pursue the route of the thirty-fifth parallel with a perfect knowledge from hour to hour of the character of the country in advance of him, its resources, climate, productions, Indians, and game. I also append to my own journal that of a young gentleman, one of my assistants, of ability, Frederic Engle, esq., of our journey returning from the Colorado river. Not having yet received a report of the condition of the work on the bridges now being constructed in Arkansas, I cannot, as I would desire, give you further information concerning them than what I have heard by a gentleman lately returned over that portion of the road. He describes them as being of the most substantial and durable character, and I hope in a few days to corroborate this intelligence by forwarding to you an official report from the officer in charge. *The road from Floyd's Peak to the Colorado is thoroughly completed, and ready for travel of any kind whatever.*

Without intending to draw invidious comparisons between the various routes from our western border to the Pacific ocean in favor of that, by the 35th parallel, I think I can, with safety, say that none other offers the same facilities for either wagon or railroad.

It is the shortest, the best timbered, the best grassed, the best watered, and certainly, in point of grade, better than any other line between the two oceans, with which I am acquainted.

For the first of these assertions an inspection of the map is quite sufficient proof; for the second, I rely upon the report of Lieutenant Whipple and my own observation, and especially my last explorations, which, by the discovery of fine pine timber in Harry Edwards' mountain, enable me to state that the 35th parallel road carries abundance of cedar and pine to within forty miles of the State line of California, within which, on the same parallel, there is abundance in the whole Sierra Nevada range of mountains. For the third proposition, I rely upon the concurrent testimony of all who have travelled the road and compared it with other trans-continental routes, who agree with me that it is habitable throughout. For the fourth assertion, I think there can be no better proof than the fact that water is at but one point, thirty miles distant; and for the last assertion, I rely upon the profile of the country, which has been prepared from the instrumental observations of my two explorations.

It is my firm belief that whatever influences may tend to divert travel from this road at present, the future will fully sustain the judgment of those who now advocate its claims.

With this report I also forward a letter from J. R. Crump, esq., who traversed the road from Albuquerque to Fort Smith in summer, after having accompanied me on the first journey over it in winter. The letter of this gentleman is entitled to every credit. He is a civil engineer of the highest professional attainments, and one whose judgment has been matured in the practice of the theories of his business.

I am indebted to him for valuable assistance on my expedition and in the preparation of my notes for the public service.

I have given my views in this letter of the facilities offered by the 35th parallel for a railroad as far as New Mexico. Accompanying this is an estimate also of the cost of that work. These may be considered by you of some value, and I am willing to give them to the public, in the hope that they may in some manner aid this great necessity of the age.

I have the honor to be your obedient servant,

E. F. BEALE,
Superintendent.

Hon. J. B. FLOYD,
Secretary of War, Washington, D. C.

Estimate of cost of railroad, with double track, from Fort Smith, Arkansas, to San Felipe, New Mexico.

FIRST DIVISION.

From Fort Smith to Antelope Hills, 377 miles; graduation, masonry, track, engineering expenses, and equipment, \$9,311,900

SECOND DIVISION.

From Antelope Hills to summit between Canadian and Gallinas, 308 miles; graduation, masonry, track, engineering expenses, and equipments..... 8,192,800

THIRD DIVISION.

From summit to Rio Grande at San Felipe, 95 miles; graduation, masonry, track, engineering expenses, and equipments..... 3,886,400

21,391,100

October 28, 1858.—After some ten days' delay at Fort Smith in making our preparations, we started to-day and came with the wagons to Warren's. I passed the day with Mr. John B. Luce, whose information on all subjects relating to the 35th parallel is more extensive and thorough than any other with whom I am acquainted. From my conversation with this gentleman I gained much valuable information, besides some excellent maps, and the second volume of Greig's Commerce of the Prairies, the best book ever written on prairie life, and particularly valuable to me, as this gentleman was the first to explore the line over which our road, for the most part, passes.

About ten days ago I despatched Mr. George Beale to Fort Arbuckle to obtain the services of a guide, or three, if possible. He returned day before yesterday, bringing the disagreeable intelligence that

neither of the men for whom I had sent would consent to start out this season, on account of the hostilities existing between our people and the Comanches; Black Beaver and Jesse Chisholm, the one a Delaware and the other a half-breed Cherokee, both agreeing that the Comanches would burn off every blade of grass as we advanced, so that we would soon not have an animal left, and be obliged to return on foot, a prospect by no means agreeable. I shall, however, go on, and trust to luck for a guide, or go without one. After straightening out camp I shall go myself to Arbuckle, and see what I can do with the Black Beaver. The country is so well known that it is hardly worth while to say anything of it between our first camp and Fort Smith; only one stream is crossed which requires bridging, which is the Poteau. This stream is about a hundred yards wide, and is bold and rapid. Its mouth is at Fort Smith, emptying there into the Arkansas.

October 29.—We were up at five o'clock this morning, and travelled through a heavy rain all the morning. It has rained every day for the past ten, and apparently not done yet. We have passed through a pretty country to-day, being about equally divided between prairie and wood land. Our teams have worked perfectly, although new to each other. We passed to-day but one stream which will require bridging, and at which place we found considerable difficulty in crossing. Its name was the Yellow Bank. Towards evening the rain ceased, and at half-past ten we encamped on a fork of the Yellow Bank, having made fourteen miles. We find here a fine open prairie, skirted with heavy timber. One stony hill was crossed by us to-day, but not a very bad one.

October 30.—We were off this morning at six and a half o'clock. It rained on us all night, and as our blankets were taken up a pool of water filled the depression our weight had made in the soft soil where we lay. After travelling a few hours in the cold rain it cleared up partially, but soon became overcast again, and we encamped on a little rivulet now running smartly with the recent rains, but I presume never a stream except during rainy weather. Our road to-day has very much resembled that of yesterday, being equally divided with prairie and wood land, and the grass abundant, even in the timber. At the crossing of the San Bois river we found a delay of two hours necessary to make the banks passable for our wagons. We found it fordable at this time, not being much more than belly deep for horses; but there are evidences of its frequently being impassable. I shall therefore bridge it. It is about thirty-five yards from bank to bank, and the stream itself in its present low state probably twenty-five.

October 31.—A drenching rain fell on us all night, accompanied with terrific thunder and lightning, and a heavy gale. We got up from the mud this morning stiff with our night's unrest, and hitching up our teams, rode nine miles facing the wind and rain, which continues without intermission to the present time, giving the prospect of another wet and stormy night. The country as yesterday. At half-past ten o'clock we encamped near a small creek heavily fringed with timber, and a fine prairie on both sides. We were delayed a short

time in repairing the road, which, with the exception of the place spoken of, was very good.

November 1.—Rained on us again all night, and all to-day very cloudy, with a cold west wind blowing in our faces. We came fifteen miles and a half, and reached our present camp at ten o'clock, leaving our morning camp at eight o'clock and thirty-five minutes. The road has been excellent all day, in spite of the two weeks rain. Our time made over it with loaded wagons is sufficient proof of this. We passed over the Longtown creek this morning, and were delayed an hour in working the crossing. This stream will require bridging. The country traversed to-day the same as yesterday; very beautiful to the eye; prairies and wood land. We find abundance of small game, such as partridges and prairie chickens; but Delaware Dick finds little for his rifle, as the Indians living here have hunted out the larger game.

November 2.—Up at four, and off at daylight; the night and day have been clear and almost cold. After travelling some nine miles we came to the Winchester mountain, which we found steep and rocky. The road, following, I suppose, some old Indian trail, took us straight up the hill; a little engineering at this point and a few thousand dollars would make a capital road over the mountain, as the land lies beautifully, and all the necessary material is at hand. A few miles beyond we came to and crossed the Canadian river; here about one hundred and fifty yards wide from bank to bank. On the south side the bank is rocky, but the northern shore sandy. The river was high, and in consequence we ferried it, and swam our loose mules over. It would be difficult to bridge this stream, and as it is fordable for the most part of the year, and only raised now by recent rains, I consider it better to leave it unbridged for the present, and until the necessities of the road demand it. After crossing the Canadian we encamped at the town of North Fork, which we found an insignificant village. Here we found corn had advanced from its usual rates of two bits to a dollar a bushel; of course, there had been a short crop, a drought, an unusual demand—in fact, a thousand plausible reasons were given for this increased price—but the true one kept far out of sight, which was that a government train and its quartermaster's drafts were on the road. Quitting the town, which had nothing inviting in its appearance, we encamped about half a mile beyond it.

November 3.—I started this morning in advance in order to try and get corn at a cheaper rate than the agent of the government agent offered it to me, which was one dollar and a half a bushel. After a ride of thirty-five miles I came to Jim Graham's, an Indian, where I was well received, and who, not being a contractor, sold me corn at seventy-five cents a bushel. Being in such good hands, we spent the night with Jim very comfortably.

November 4.—Arrived at Little river. At this place I found a trading house belonging to Mr. Aird, and was received by him with kindness and hospitality. It gives me pleasure to say that we found in him an energetic assistant, eager and willing to promote our enterprise and forward it in every way. He readily sold us corn at a dol-

lar, being a third less than we were offered it by others, and in everything we purchased of him we found the prices a great reduction on those of North Fork.

November 5.—This morning, about noon, arrived Mr. Laws. I had sent this gentleman on the south side of the Canadian from Scullyville in order to settle the disputed question as to which is the shortest road, that by the south side, or the one we have followed; until a comparison is made of the readings of the viameters we shall not be able to decide. Little river, which we crossed at this place, will require bridging, and is a fine stream about two hundred yards from bank to bank. The bed is rocky; the water, excepting after a rain, clear and abounding in fish, some of such size that they straightend out our largest hooks. Catfish have been caught here weighing a hundred pounds.

November 6.—Our wagons arrived and encamped near us; we are now awaiting our escort.

November 7—Compared distance by Mr. Laws' viameter and our own, and find his road three miles shorter; so much for that matter, which has been a bitter dispute between the north siders and south siders ever since I arrived at Fort Smith. Laying by waiting for the escort.

November 8.—Weather seems to have made up its mind to clear; a beautiful morning; still waiting for the escort.

November 10.—Leaving our hospitable friends at Mr. Aird's, we started this morning at nine o'clock, and after travelling seven miles over a very pretty country and a tolerable road, encamped by the side of Little river in a pretty open prairie, covered with fine grass and skirted with abundant timber of ash, elm, hackberry, and oak. I shall now travel slowly until the escort overtakes us. The weather bright, clear, and pleasant.

November 11.—Started by seven o'clock and travelled over an excellent road and through a beautiful country for fifteen miles, when we encamped in a fine prairie, skirted with oak, and having fine water in a small ravine. It has been a matter of remark with all our party—the amount of mast which this country produces. Everywhere in the timber we find the ground covered with hickory nuts and acorns, and in the bottoms a few pecan trees add to the variety of hog feed. The country to-day has been the same as that passed through for some days back, excepting that the prairies are getting broader and more frequent, the woodlands separating them being only narrow belts. Our road has been along a high ridge for the most of our day's journey, and has been over limestone, with occasionally gravel and a little sand.

November 12.—Started at seven o'clock and travelled until one, making a little over sixteen miles. The road excellent and following a divide or ridge all the way. Timber and grass and water abundant. At one we encamped at a pool of water which came from a spring at its head. The pool was large, probably thirty yards in length and half as many in width, with three feet of water in it, and fringed with trees and bushes. We have found to-day on our road an immense amount of fine gravel, mixed with sand. Of the sixteen

miles over which we have passed, at least half has been gravel ridge, covered with small oak. Of course, it is impossible to say how much water may be found in this road at dry seasons, but we have found it abundant in every hollow.

November 13.—We were up at four o'clock and off before sunrise. Shortly after leaving camp we came to the end of the belt of timber in which we had passed the night, and a beautiful stretch of rolling prairie lay before us dotted over in some places with trees, and in every little ravine running from the divide we were travelling upon we found a fringe of timber. Game begins to get more abundant as we approach the verge of the semi-civilized tribes through which we have been passing, and to-day Dick, the Delaware, brought in two fine deer. Wild turkeys and raccoons are also very abundant. Our road to-day has been excellent, and by two and a half o'clock, including a delay on the road of half an hour, we had made seventeen miles, when we encamped in good grass near a small stream. At this camp I notice for the first time on this road the gramma grass of New Mexico, mixed with a good deal of the buffalo grass of the plains, from which it differs but little. Of gramma grass there are many varieties, and all most excellent. That alluded to at present is called "Gramma de Chino," or Curly Gramma, by the New Mexicans. This evening, near our camp, I found R. Frank Green, esq., with his mail stages, awaiting my arrival, and intending to take advantage of my escort to pursue their way to New Mexico. Mr. Green has been waiting nearly a month, the late fight of Major Van Dorn, (United States army,) and the hostilities consequent thereon making it impossible for him to pass the Comanche nation unprotected. This is a most unfortunate matter, as he had prepared himself at great expense and trouble to carry out a contract which he had entered into with the Postmaster General to carry the mail from Neosho, Missouri, to Santa Fé, New Mexico. Of course, under the circumstances, the government will see that he suffers no loss by reason of its inability to control the Indians with whom we have treaties. Nevertheless, under any circumstances, it frustrates for the time this enterprise, for which the preparation has been expensive, and which has been made with the greatest promptness and energy.

November 14.—Leaving our camp at half past six o'clock, we travelled slowly along, marking our way by cutting down such trees as obstructed the passage of the wagons and blazing others. The country, to-day, has been equally as beautiful as that of yesterday; but the soil reminded me more of that of California, a rich black loam mixed with sand. We crossed several very pretty brooks of clear running water, which made me regret that I was not thirsty. The banks of these pleasant streams were all steep, so that we were delayed in cutting them down in order to cross. I noticed that the banks of all of them were of red clay, which, in Virginia, is said to denote limestone. At one o'clock we reached Choteau's creek and found it a fine clear stream, running through a bottom filled with pecan trees, hackberry, and cotton-wood, and the finest pasturage we have had since we left Fort Smith. The bottom is covered with wild rye, fresh green grass, and pea-vines, on which our mules soon filled themselves to repletion,

and the majority soon lay down, unable to feed longer. The bottom, at this place, is of vast extent, and the common bottom grass covers it waist high. Although detained over two hours, we have made, to-day, from half past six to one o'clock, ten miles and a quarter.

November 15.—We lay by to-day again waiting for our escort. This morning, getting up before day, Mr. Baker and myself took our guns and strolled into the woods, where we soon secured two wild turkeys each, besides wounding one which escaped us. The bottom abounds in fine food and shelter for them. We have employed most of the day in cutting a road through the timber, and cutting down the banks of the creek, to make it passable for wagons. I also sent a party out to the Canadian, which flows close to us, to cut out a crossing for that river. At this point I have determined to send back my first assistant, H. B. Edwards, esquire, in order to superintend the construction of bridges over the streams we have crossed, the sites having been already selected by myself. I part with this gentleman with great reluctance, having much need of his services, and relying greatly on his calm and deliberate temper and judgment for assistance in all cases of difficulty, especially I shall miss him when it becomes necessary for any reason that I should be absent from camp, which is frequently the case. I rode yesterdry with Mr. Green up this stream for about three miles, and discovered on a small tributary of it the remains of old Choteau's trading post; looking among the ruins, I found a human skull, which I tied behind my saddle and brought to camp. From the old fort we extended our ride to the Canadian, and crossing it ascended the opposite bank looking for a good crossing. I found the river a broad sandy bottom, but the actual stream of water was not more than fifteen yards in width. The crossing was excellent, and the bed so broad (over half a mile) that bridging here would be entirely unnecessary. The grass had been burned off a day before, but we found a good camp to which we shall move our camp to-morrow. There is abundance of timber of cotton-wood, pecan, walnut, hackberry, ash, and hickory on both the Canadian and this stream.

November 16.—We were up this morning at four and off at seven o'clock. Following the route I had chosen, we crossed Choteau's creek where we had cut down the banks at our camp, and crossed the Canadian. The slush ice was running down the river, and the edges of it encrusted with ice as thick as a dollar. To cross the Canadian we followed up the bottom, about two miles and a half, and forded the river, which was knee deep only, and the bottom was of fine hard sand. After crossing we encamped on the edge of the bottom, where the hills commence, and found it like Choteau's creek, filled with fine grass and pea-vine; walnut, pecan, ash, and hickory were all abundant. Wild geese, duck, and game of all kinds were plenty. Above our camp was a lake close to the bluffs, with high grass, in which we found geese plenty and a variety of ducks. We moved to-day only three miles, as we are still awaiting our escort, which must now be near. Mr. Edwards left us to day.

November 17.—Up at four and off at half-past six o'clock. Leaving the Canadian, we ascend gradually to the divide by a road we had previously cut out. The divide reached, we found the ground firm

and hard, and the travelling excellent. The grass on the divide was entirely burned off, leaving it so bare and so desolate in appearance as is possible to conceive. We followed the divide until near noon, our road, consequently, was not a straight one, but the travelling excellent. Many hollows head up towards the top of the divide, the waters drained by them running south into Walnut creek, a tributary of the Canadian. The hollows are all well timbered, but water is seldom found in them. About noon, having no particular reason for hurry, and being desirous of seeing Walnut creek, I turned from our course some three or four miles, intending to encamp on it for the night, and to go back on to the Canadian in the morning. On this account the distance travelled should not be taken into account, in summing up the whole distance to Albuquerque. We are now only moving camp daily a short distance, and waiting for the escort to come up. I found the Walnut creek bottom of great fertility, bearing abundant grass, and plentifully timbered with the same wood as growing at Choteau's, on the Canadian. The appearance of the creek is troublesome on account of the thickets and brambles growing near it. The stream itself is clear, cold, three feet and a half deep, and about six yards wide. Fish and turtle seem plenty. Game is here easily taken. Our hunter, the Delaware, brought in three deer and a wild turkey, besides which numerous opossums and raccoons were captured by our men.

November 18.—We were up at four and off at twenty minutes past seven. The morning was so cool that most of us took it afoot. The sun was bright and clear, with a slight but keen breeze from the northward. We took a ridge gradually, ascending from Walnut creek to the main divide, and, after travelling nine miles, made camp in an oak grove, a portion of the cross-timbers which extend in a belt varying from five to fifty miles in width for a great distance north and south. Our road was excellent, being on the summit of the divide, and overlooking a great extent of country, with Canadian and Walnut creeks frequently both in sight at one time. We passed an infinite number of hollows on both sides, heading up in the divide and cutting into it so far as to make it very narrow in some places. These hollows are all well wooded, and some carry water. At noon we encamped in the grove of oak timber, having crossed in the bottom, a hundred yards or so, before we came to it, a fine pool of water fed by a perpetual spring, affording abundant water for any number of animals, and unlike the other hollows we have passed, which have steep banks, it is in almost a flat, and very easy of access. The Delaware brought in two fine deer and two raccoons shortly after leaving camp. We saw to-day a buffalo bull, being the first we have met with. We shall now look out for Mr. Indian, as it is generally the case when buffalo are on one side of the hill an Indian is on the other. In consequence of running off to Walnut creek our road on paper would present quite a crooked appearance.

November 19.—Determined to remain all day in camp to await Mr. Steen. In looking at this country with a view to building railroads along it, I am convinced that the most feasible is in the valley of the Canadian. The bottom through which this river runs is almost always two miles wide, the stream itself never exceeds twenty feet. The bot-

tom is as level as any other meadow, and offers, as far as my judgment goes, no obstruction to the location of a railroad. On the other hand, the getting up on the divide, or the crossing in a straight line the numerous ravines which have been mentioned as cutting into it almost to the centre, would be too laborious and costly. It snowed on us last night, and this morning is gloomy, with continued snow. The Delaware brought in a fine doe.

November 20.—Saturday, laying by in camp awaiting our escort. Captain Noland, United States army, and young Ogden left us to return home, having become tired of the journey and somewhat disheartened at the gloomy appearances ahead. I discovered to-day that I was poisoned, and expect for the next two weeks a pleasant time of it.

November 21.—Left camp at about ten o'clock and moved over to our present camp five miles. A wooded and open prairie country alternately.

November 22.—Raised camp at nine and came a mile and a half, moving merely to shift our camping places and for fresh grass. We are encamped on the northern and western verge of the Cross Timbers, and find the black jack decidedly the best firewood I ever used. It seems inexhaustible in quantity. The grass here is abundant, and although the late snow storm covered it to the depth of six inches, it still affords good grazing for our animals. The Delaware killed a fat bear. The day has been bright and warm, and we hope to-morrow the snow will be all gone. I have found it so far much colder on this parallel than I thought it would be. See table of barometer.

November 23.—The day broke fine and clear and the snow rapidly disappearing. Still waiting for our escort. At half past nine moved camp three miles and a quarter. Wood is now getting scarcer, as we have entirely passed the Cross Timbers, and we find it only in the ravines leading from the divide to the Washita on one side and the Canadian on the other. We are now but a few miles from Marcy's trail of 1849, and expect to strike it to-morrow if we move. The Delaware brought in a deer.

November 24.—Started at ten o'clock and came four and a half miles. Encamped at good water; wood sufficient and grass plentiful. We followed the divide, not leaving it at all, and our present camp is on a tributary of the Little Washita, separated from the waters that fall into the Canadian by a divide scarce a hundred yards wide. Still awaiting the escort, which cannot now be far behind. Mr. Green has just handed me a letter, Mr. Steen, through his adjutant, informing me that he will be up in two days. I was poisoned a few days ago, and to cure the poison used mercurial ointment on the parts affected; this produced salivation, rendering me unfit for anything in the world. The day has been warm and pleasant, with a south wind, and the snow almost entirely gone. The Delaware brought in a deer.

November 25.—We left camp this morning between seven and eight o'clock. Last night was pleased to see Dr. Duvall, the surgeon of the escort, who passed the night with us. We came to-day, in some eleven miles, to a little creek, and encamped on it, with the Canadian about two miles from us. The pulling to-day has been exceedingly

heavy, owing to the melting of the snow, which has now disappeared, excepting under sheltered banks. The wheels cut in almost to the hubs in some places, so that our mules have had a hard day of it. The soil of these prairies over which we are passing seems very rich, and I should think would produce well. They are entirely unlike those of Arkansas in composition and grasses. Here we have gamma, and bunch, and buffalo grass, than which none are better; there, only a coarse, innutritious grass, and a poor, thin soil. It is a fine running stream we are encamped on, and as it has no name, I shall call it Daught's creek. The bottom land is extensive and rich, and the whole very well timbered, making our present camp very good. It abounds in deer. The Delaware killed one, and also a buffalo, which is the first killed on the journey. We hope to see Mr. Steen here to-morrow evening, and then shall go on together.

November 26.—We lay by this day, in order that Mr. Steen may overtake us. At noon the welcome sight of the soldiers who formed my escort greeted my eyes, and in a few moments their camp was pitched close to us. Our men look finely, and the two pieces of artillery make our little party of one hundred and thirty men formidable. To this the citizens' number added makes a very fair force, especially as we are not *seeking a fight*, and only fight if attacked. The day has been warm and pleasant, with a somewhat high wind from the southward, and cloudy. The Delaware brought in a deer. Lieut. Bell killed a snake at our camp to-day. A bee tree was found in the bottom, and the bees *at work* in the tree. These facts speak well for the weather and temperature of the thirty-fifth parallel.

November 27.—We left camp at seven o'clock precisely, that being the hour I have fixed, so that the escort may have one steadfast hour to rely on for starting. We came to our present camp at one, having travelled twelve and a third miles. The country this morning has been beautiful, the divide on which we travelled undulating and covered with fine grass, and from prominent points giving grand views of prairie, woodland, and streams. Where we encamped there was a deep hole at the head of a ravine, and near the top of the divide, of some thirty feet in diameter, which was very deep and contained quite a number of fish and bull-frogs. Mr. Breckenridge, one of my men, who went out shooting last evening, did not return last night, and this morning I sent parties out to hunt him; one of them has returned unsuccessful. We have passed grass to-day as fresh almost as one would have expected in June. The Delaware killed three buffaloes to-day.

November 28.—I laid by to-day and intended to have hunted up Breckenridge, who had been lost since night before last. Two Delawares and two Shawnees had left camp a mile or so hunting him, where they found and brought him into camp; he had wandered in a bewildered state over about forty miles, and was in a wretched, dilapidated condition; the merest chance had directed his footsteps towards our camp. The country to-day has been beautiful, and the high divide which we are now travelling, between the Washita and the Canadian, makes a road perfect in everything but directness of line. We encamped on an arroyo, well wooded, which leads to the

Canadian. The grass all day has been excellent. One of our best men (Laws) was shot by the criminal carelessness of a man named Allen. The latter had been off shooting turkeys, and forgetting to let down the cock of his gun, he approached Laws and it went off, taking off the first joint of his right forefinger, then fortunately striking the barrels of Law's rifle glanced and inflicted but a slight wound in his groin. Dick, the Delaware, killed a fine buck and three turkeys; others also killed turkeys.

November 29.—Raised camp at four and off at half-past six o'clock. Travelling over a magnificent prairie nine miles, with abundant timber in sight and occasional bands of buffalo, we passed the rock Mary, a singular sandstone butte with forked summit, about two miles to our left, and soon after encamped near some curious sandstone buttes, which I called after the commander of my escort, "Steen's Buttes." From the one nearest us, which I ascended, the view was magnificent. Off to the south sixty or seventy miles the Wichita mountains were in plain sight, and also many wooded lines marking water-courses and ravines leading to the Washita. To the west the boundless prairie spread out before us, and to the north the timber of the Clear creek could be traced to its mouth in the Canadian, the line of which latter stream was well defined by its timber and banks. Our camp is just at the head of what the Indians call Sugar Tree valley, and a point of black jack which seems to have gotten lost from the cross timbers and comes close to it. The banks of this valley, or cañon, are precipitous in most places, but in others slope so as to admit of loose animals going down the sides without difficulty. The bottom once reached, after a descent of the banks, which are about fifty yards high, we find a valley of level land grown up with large trees, many of them sugar trees, and a number of fine springs breaking out on all sides, which, uniting a short distance below, afford quite a stream of clear, sparkling water. The valley, narrow at first, being only fifty yards or so in width, widens to one of half a mile at some distance below, and contains fine grass and timber throughout. Here would be a charming place for California travellers to come and winter with their stock and start on in the spring. No storm could ever injure their cattle securely sheltered in the valley, while the open prairie would afford an inexhaustible supply of grass for hundreds of thousands of cattle. From this point onward we have no guide, as Mr. Chisholm, who has been with us, knows the country no further; yet his judgment is so mature that I shall endeavor to persuade him to accompany us all the way to Anton Chico. The Delaware killed four buffaloes this morning. After dinner Dr. Floyd and myself took our rifles and went down the stream exploring. We found it widening gradually at two miles from camp; a fork came in on our right; the water of this fork was clear, sparkling and rapid; it was not over two yards in width and about two and a half feet in depth; where the two joined the valley was beautiful. The hills had softened into a gentle ascent on either side, or rather the prairie became an undulating one, and the fine grass was knee high. Timber in the bottom was very abundant and of the usual bottom growth; black jack covered the hills in many places. It is evidently a favorite resort of buffalo, deer, turkeys and raccoons, for

their fresh tracks covered the surface, but unfortunately a fire had broken out from the camp of the escort which the wind was carrying with fearful rapidity in the direction of the valley. We found here everything desirable for the location of a first class military post; abundance of wood, water, grass, and game of all description; besides which, it is just on the range of the Comanches, or rather it is about their eastern range. Up to this point three or four could travel in safety from the settlements, and emigrants collecting here could form in companies large enough to protect themselves through the dangerous Indian country lying to the westward; on this account a post here would be more desirable than one further on; I decidedly prefer it to any other place we have seen for the location of a military post. A raccoon was killed by one of the men weighing twenty-eight pounds.

November 30.—We were up at four o'clock, and off before sunrise. Travelling over a beautiful country, we came, at half-past eleven, to a small ravine and stream running into the Washita; here we halted, and spent two hours grazing our mules on the fine grass; starting on again, we pursued our way over a vast prairie abounding in buffalo and a few antelope. At four o'clock, having made nineteen miles and a half, we turned off the road a half mile to a little rivulet bearing a scant supply of trees upon its banks, and encamped for the night. We have passed this evening immense deposits of gypsum, which seems to be of excellent quality. According to Mr. Chisholm, whom I succeeded in persuading to accompany us, this is one of the heads of Clear creek, a tributary of the Canadian. He says Clear creek is the best stream in the country, and better than the Sugar Tree valley, described yesterday, for a military post, but I cannot conceive that it can be better. To my mind, the great fault of our military posts is, that they are built too permanently, and at too great cost, so that we frequently hold on to them long after they have ceased to be useful, rather than abandon places which have been built at such great expense. With a constantly or yearly extending frontier, we build posts as though our frontiers were permanent. No military posts such as ours should be erected on the frontier; they should be simply temporary camps, which could be abandoned at any time without loss. It is evident that, for the protection of our mails, (I have before mentioned that a contract has been let, and that the contractor is now with us, from Neosho to Santa Fé, on this road,) and emigrants over this route, a post somewhere in this vicinity is imperatively called for. The Delaware killed three buffaloes to-day. I engaged to-day a Shawnee hunter, who had come out with Chisholm. His name is Little Axe, and as a hunter he ranks in the first class.

December 1.—Up at four and off at half-past six o'clock. Travelling about seven miles over a lovely country brought us to Gypsum creek, which we found a clear, bright, flowing stream, tributary to the Washita. Here we turned our animals out to graze while we engaged ourselves in preparing the banks of the stream for the passage of the wagons. Having bridged the stream, we crossed it; and after leaving Gypsum creek we came, in five miles, to Bear creek, which we also bridged, but which will require another of a more permanent character. Leaving Bear creek, three miles brought us to Elm creek,

on which we encamped, and which we shall either bridge or work the banks sufficiently to pass in the morning. The road all day has been over a rolling prairie, and is excellent throughout. Many buffaloes were seen to-day. The Delaware and Little Axe killed four, but only brought in the meat of one, which was a very fat cow. Gypsum has abounded everywhere to-day, and the soil is without fault. Timber and grass have been abundant at all the streams we have passed, but do not exist elsewhere.

December 2.—Finding Elm creek required not only a very deep cut, but also a bridge to render it passable, I commenced on it at daylight, with our whole force; and timber being abundant and close at hand, by three o'clock the cut and bridge were both ready. We then crossed it; but before getting over, the day, which had been threatening, turned out a storm northerly; and after going a mile or so, we were obliged to seek shelter on our left, where a bend of the Washita, having a high bank before reaching the regular river bottom, afforded us excellent shelter, and good grass for our animals. During the evening snow fell in successive squalls. The Delaware and Little Axe killed a very fine cow buffalo.

December 3.—The night past has been a hard one. A stiff north-west wind, accompanied by hail, rain, and snow, has rendered it a most unhealthy one for our animals as well as men. The morning looked so threatening that I determined to remain in the camp, as our next move must take us to the divide, where the wind will have a clear sweep at us. Dick, the Delaware, and Little Axe killed a fine buffalo near camp. We dined to-day on buffalo, fat raccoon, venison, and marrow bones. On our wagon was wild turkey, and opossum, and side of bear, and Mr. Baker this evening killed a good bunch of rice birds, or, as we call them at home, reed birds. The President himself could not sit down to such a table. The country between here and Elm creek is level; one ravine exists, at which a wagon was upset, but by crossing to the left in the bottom that difficulty is avoided.

December 4.—We left camp this morning on the Washita, and shortly after, in two miles and a half, came to a creek which we supposed to be the Comet creek of Lieut. Whipple, though his distance on the map would have made it some fifteen miles beyond. The morning turned out badly; rain, sleet, and snow fell on us at intervals all day, and the night promises more. Arriving at the banks of the creek, we found them high and the bottom boggy. I immediately set to work to bridge it, which we accomplished by sundown. All the creeks we have passed for the last three days will require permanent bridges of iron, so that the Indians cannot burn them, or else the emigrant must follow the divide to the great loss of time and distance. The valley of the Washita is the widest and most productive we have seen, and in time will afford homes to thousands who are now without them. The whole country abounds in wild turkey, deer, and buffalo. The Delaware killed a fine doe this evening. At this camp a singular thing occurred. The ground was covered with birds resembling reed birds; I think over two hundred of these delicious little fellows were killed with switches by our men. Mr. George Beale alone killed thirty with only a willow switch about eight feet long.

Up to this point we have found the road superabundantly supplied with water, wood, and grass, and unquestionably protected with military posts—the best emigrant road between the frontier of the States and California. Suffering intensely all day with rheumatism. The bottom lands of this creek resemble in fertility those of the Washita, and are well timbered.

December 5.—We left camp late this morning, (nine o'clock,) and travelled seventeen miles, arriving at five o'clock at a small stream with a thread of water passing between steep banks. There was cotton-wood and ash quite sufficient for fuel, and fine grass in abundance. Our road to-day passed over a high rolling and sometimes a hilly prairie, passing some ravines, but none of them difficult. After coming fifteen miles, we arrived at the dry bed of a stream, at the crossing of which there was no timber, but sufficient for fuel a little below. Here I had intended to camp, being under the impression it was the Silver creek of Lieut. Whipple, but finding no water in it we came on two miles further to our present camp. On a hill passed to-day many shells were picked up by our party, some of which resembled those of the oyster. Buffalo plenty. The Delaware and Little Axe killed four. Pony tracks have been seen this evening, denoting the presence of Comanches.

December 6.—Raised camp at a quarter past eight, and, travelling four miles, came to Marcou creek. This we bridged. The bottom was fine, rich land, with timber sufficient, and buffalo were grazing on it as we came up. Crossing the bridge, we travelled five miles to Wood creek, which we found almost dry, but, bridging it, we crossed, and in two miles and a half came to Oak creek. This we found a fine stream, running between steep banks, well fringed with cotton-wood, elm, and a few oak. The creek is exceedingly crooked, making almost islands at every few hundred yards. The bottom lands of this creek are wide. I should suppose on both sides included fully a mile and a half, and very rich, bearing most excellent grasses—mesquit, gramma, and buffalo. Our road to-day has been over high rolling prairie for the most part, and excellent in all respects. The creek we are encamped upon forks about a short half mile above our camp. The fork runs off to the northward, while the stream keeps a more westwardly course. Buffalo have been abundant all day. The Delaware and Little Axe killed two and a deer. The morning was exceedingly disagreeable, cold, freezing and misty, but it cleared at noon, and the evening was delightfully pleasant, clear and warm. We shall bridge this stream in the morning.

December 7.—We were engaged until three o'clock in bridging Oak creek, the banks of which are high and steep. The weather has been excessively cold, the thermometer this morning being only ten degrees above zero, and a high north wind blowing all day. At half-past three we raised camp, and, crossing the bridge, came about two miles, and encamped in a sheltered bend of the river on the west side. We passed this evening a broad, well defined wagon trail running north and south, which I supposed to be that of a man named Prole, who a year or two since started with a large party gold hunting and got lost, and, after twisting and turning in every direction, at last got

over to the Washita, and so home. The Delaware and Little Axe killed a buffalo.

December 8.—We left camp at half-past eight o'clock, crossed the bridge we had made, and in a mile or so arrived at a fork of Oak creek, which we also crossed, leaving behind us a trail we had followed, and supposed to be Whipple's, and took the divide. We found the country on either side cut up into rugged ravines of red clay and sandstone, and frequently curious-looking mounds. At times the divide narrowed and became rough for considerable distances; nevertheless, the road as a whole was good, and, travelling fifteen miles, we saw from the top of the divide the Antelope Hills, and to our left the Canadian. Travelling down an affluent of the latter two miles brought us to a fork of it containing water, on which we encamped. The ice was so thick upon it that we had to cut through for our animals to drink, and found the water slightly brackish, though not unpleasant. We passed to-day large patches of dwarf oak, which in places covered the prairie for acres. About three miles from the little fork on which we are encamped was a circle of small oak perfectly round and having a spring in the centre. The morning was bitter cold, but towards noon it became warmer, and the evening was very pleasant. The Delaware and Little Axe killed four buffaloes and a deer. We travelled to-day seventeen miles. Many wooded forks or small tributaries of the Washita and Canadian were seen to-day putting out from the divide; in some water was found, in others none. The Antelope Hills are of the same form, and differ but little in general appearance from the natural mounds described some days back, to which I gave the name of Steen's Buttes. Last night one of Lieut. Steen's sentries shot another, who failed to hear his challenge in the high wind, the wound likely to be severe. Oak creek I think an excellent location for a military post.

December 9.—Left camp at eight o'clock, and crossed a fork of the stream we had encamped on; and crossing a spur of the divide, and shortly after another, thence by an easy descent we reached the Canadian. We found it very much as described at our previous crossing, excepting that there was less wood upon its banks, and apparently a little more water in the bed. Some distance above, on the opposite bank, was a sugar-loaf shaped red knob, making a good landmark for our night's camp, as it is nearly opposite the small stream running into the Canadian, on which we encamped for the night. Directly opposite camp another stream empties into the river, and has a large motte of timber at its mouth. From where we struck the river we travelled up the bottom for a mile or two, directly towards the Antelope Hills, which are in plain view, and then going out on hills a mile or two more, came to camp in a sheltered valley tolerably wooded, and having abundance of water in large pools, which tasted of sulphur. To-morrow we shall follow the river bottom for a mile and a half, when we shall go out on the hills and cut off at a bend the river seems to make to the northward. Looking ahead at the country, it seems to promise a more level road than we have lately had. Buffaloes have not been so abundant to-day; nevertheless, the Delaware and Little Axe killed two or three. The more I see of this river, its wide

bottom, level surface, soil, (clay and sand,) and its evident freedom from overflow, the more I am convinced that it offers decidedly the most level line for a railroad to be found for the same distance between the Pacific and Atlantic. To this point there cannot be urged a single objection, unless it may be that wood does not here seem to be very abundant. The Washita, however, which is not far from it at this point, and which is a finely-timbered stream, might afford all the requisite wood for cross-ties, &c.; and the distance to haul from that river to this is inconsiderable.

December 10.—Left camp at a quarter past eight, and travelling up the river bottom for about two miles, took to the hill-sides, and going west towards the Antelope Hills, crossed several scantily-wooded streams of small size, tributaries of the Canadian, in only one of which we found water; we passed between the Antelope Hills, which we found high mesa or table-top hills of white rotten sandstone; thence over a hilly prairie country, covered with fine grass, we came to camp on a small tributary of the river, pretty well timbered, and containing fine running water, fifteen miles from our former camp. On looking at the river from elevated points, so that I could observe it for some distance, only a few mottes of timber could be seen, and not in such quantities as to admit of a great deal of shelter. Buffalo are becoming scarcer, yet the Delaware and Little Axe killed three and a deer.

December 11.—Left camp at half-past seven, and passing over long stretches of prairie, intersected frequently by deep valleys and water-courses, sometimes well wooded and at others but scantily, sometimes containing water and at others only a dry sandy bed, we came at noon to one containing running water, at which we stopped an hour to water and graze our animals. About four miles further on we encamped, having made fourteen miles and a half, and quite near within a mile of the Canadian. A mile before camping we crossed a stream, the water of which was not frozen—a circumstance which proved it to be fed by springs. In this stream were fish resembling pike, and quite numerous. Our road to-day has been nearly parallel to the river, occasionally cutting off at a bend, and at others close within a mile of it; the soil has been a sandy loam, with sometimes long stretches of gravel of a very fine quality. The whole day's travel has been (as, indeed, our whole road) covered with abundant grass of gramma and buffalo; brown sedge is a common growth in small patches, but the other grasses mentioned are everywhere most luxuriant. In looking along the river we frequently saw mottes of timber—some of them extensive, others in small bunches. To-day we have not seen a single buffalo, and the Delaware and Little Axe only brought in two wild turkeys as the result of their day's hunt. We have passed to-day many prairie dog villages; at one, while looking around for a shot, I came near stepping on a rattle-snake, but warned by his rattle, stepped back and killed it. It was one of six rattles; and the fact of its being abroad was hailed as an omen of good weather. The day has been warm and delightful, and the night is clear and calm.

December 12.—Left camp at half-past seven, and followed a road

very much such as yesterday, crossing extensive plateaus, deep valleys, and ravines, some of which were well timbered, and containing water in pools. Nine miles brought us to a fine running stream, on which I nooned and grazed the animals, and called Floyd's creek, after Dr. Floyd, the surgeon of the expedition; gravel hills were passed frequently, and the soil generally was sand and loam, and grass abundant; timber on the Canadian appeared in larger mottes and more frequently; in places the river was fringed for miles with cotton-woods. After leaving our noon camp we came down to the river bottom, on which we travelled a mile or so; then ascended the banks, and, after a mile or two, took again to the bottom, and travelled sometimes on the bottom and at others on the banks, until we came to Dry river; this we found a wide, sandy bed, the banks very well wooded, and entirely undeserving its name, as it was running a brisk stream thirty-five or forty feet wide of clear water. We have passed some natural mounds of mesa formation to-day, and others lay still ahead and to our left. Our day's travel has been sixteen and a half miles; the river bottom, the more I see of it, convinces me that the most direct and easy line for a railroad must lay along its level surface; it is here a mile and more perhaps in width, and looking down and up it to-day we could see perfectly straight stretches of over twenty miles; smoke has been seen ahead to-day, indicating Indians. The Delaware and Little Axe killed to-day a buffalo and eight wild turkeys; the weather has been mild and delightful all day, and the night is calm, clear, and pleasant.

December 13.—Raised camp at a quarter past seven, and travelling seventeen miles, encamped at the mouth of a dry creek, the mouth of which was broad and pretty thickly timbered with cotton-wood and elm. Our way to-day has been sometimes in the broad river bottom, and at others on the banks bordering, and the whole very good, with not a heavy hill on it. Opposite our camp this evening is a broken range of mesa hills resembling the natural mounds passed on this side of the river to-day, and evidently at one time connected with them; they are striking in shape, being for the most part like ruined fortresses. Timber to-day has been abundant at many points along the river; I noticed especially too very broadly timbered creeks of elm, ash, and cotton-woods coming into the Canadian on the opposite side; on this side the creek seems not so bountifully supplied, though there has been quite sufficient. We nooned for an hour on a creek having no timber, but fine water in pools. It is worthy of remark, that for the past week on all the streams we have crossed there has been found a great number of grapevines, looking as if they were regularly trimmed, the bush being short, and growing, not as wild grapes generally do, on trees, but just as in a vineyard; wild plum trees have also been very abundant; there was more sand and gravel in the line of our march to-day than previously, though not enough of the former to make heavy pulling. Little Axe killed a large panther, and the Delaware two wild turkeys to-day.

December 14.—Raised camp at half-past seven, and travelling seven miles, arrived on the banks of Valley river, a clear, sluggish stream, which at times empties into the Canadian, but at present a sand bar

shuts its mouth, rendering it passable dry-shod. We crossed some distance, say three hundred yards, above with our wagons, and stopped to noon and water on the western bank. We found the bottom only tolerably wooded and very sandy, with but little grass, and that of poor quality. Travelling four miles further up the bottom of the Canadian, which here a way is scantily timbered, encamped, having made eleven miles. The road of to-day has been more sandy than any we have seen on the river; and on the left drifted sand hills of considerable height have made their appearance. The Delaware and Little Axe killed three turkeys.

December 15.—Raised camp at a quarter past seven o'clock, and pursued our way up the level river bottom, only leaving it to cross a short spur and valley containing a fine stream of clear water, which I named Chester creek. Passing a fine motte or two of timber, we nooned for an hour at a point where we found water in small pools near the edge of the bottom, and fine gramma grass on the hill-side. Within a mile or two, after nooning, we passed Spring valley at its mouth, which was a bold spring coming out of a patch of cat-tail and rushes on the hill-side, and a little timber. Coming thence up the bottom, which was sandy, and passing many gravel hills on our left, we came to camp on a dry stream, near the Canadian. Here we found a wide bottom, filled with excellent gramma grass and abundance of wood; our water we got from the river, a few hundred yards distant. The mesa formation on the north bank seems to give out here, and seems to soften out ahead into plains and rolling prairie. We made to-day fifteen miles; the road has been very good, though sandy in places. The Delaware killed a fine deer and a raccoon, and Little Axe two wild geese. My greyhounds brought down a fine deer, after a short but gallant race over the hills—Nero taking the lead, with Fannie, Prince, Buck, and Remus close after him. Indians have been on the other side of the river within twenty-four hours; the Delaware seeing a pony, which had either escaped them or had been left behind, crossed and brought it into camp. This country will some day be as great a vine-growing region as California. On every creek the grapevines abound, and the soil, a sandy loam, seems particularly adapted to their growth. As I have before stated, they do not run on trees, but grow, like cultivated vines, short and bushy.

December 16.—Raised camp at a quarter past seven, and travelling about four miles up the bottom, we left it, where the bluff came down to the river's edge, and crossing the spur, descended again into the bottom, at the mouth of Bluff creek, a good running stream of water. Nearly opposite, on the other side, we saw the ruins of Bill Bent's trading-house, which was once a branch of the celebrated Bent's Fort, on the Arkansas, above the Big Timbers. Some two or three of us crossed the river, (which we found about eight feet deep, running in several channels filled with much ice, and some eighty to a hundred yards from bank to bank,) and examined it. It was pleasantly situated, having a spring and good stream of water, and up the valley, at the mouth of which it is built, timber sufficient. Indians had been encamped within the old walls but a few days previous, and the amount of old signs proved a favorite camping place with them. The pre-

vious eccentric proprietor becoming disgusted one day at the Indians, who had killed some of his oxen, fired it, and left for his old home, at Bent's Fort. Following the river bottom three miles or so further, we again ascended the bluff where the hills touched the river, and crossing the spur, and travelling three miles further, stopped to noon on the river, and nearly opposite a red high mesa bluff on the north bank. Leaving our noon camp we came, in a mile, to a fine clear creek, sixty feet or more in width, with a hard, sandy bottom, which I called Crump's creek. Leaving, this and travelling about seven miles, over an excellent hard sand and clay bottom, we came to a camp on Moale creek, having made nineteen and a half miles. At this place we found the best camp since starting. The gramma grass was knee high, and timber felled to our hands by numerous Indians, who had some years previous wintered here; also a fine running brook of water. Our road all day has been good, and the weather delightful, as in fact it has been for the past week. All the hills passed to-day, and forming the bluffs of the river, contained gravel or white sandstone, with now and then some little gypsum. The river bottom generally seems too sandy to produce grain well, but abounds in bottom grass, and all the hills near it are covered with gramma, which will render this a famous grazing country. Timber on the river to-day occurs in mottes, as heretofore, and in some places these mottes are extensive. It appears that on the other side the tributaries of the river are as frequent as on the side we have travelled, so that a vast extent of country will some day be opened up for settlement in this region. The Delaware and Little Axe killed a deer and turkey.

December 17.—Raised camp at twelve minutes past seven, and following the river bottom four or five miles, we turned off to the southward, where a ravine entered the bottom, and, following it a short distance, ascended to the prairie. We bid good-bye to the Canadian with great regret, for not only had the travelling been good along its banks, but the scenery had been varied and the weather delightful. Where we left it the bottom was as wide as ever, and but that we were short of provisions and feared detention, should have followed it to its fork, the Conchas creek, and gone thence to Anton Chico. The formation of its banks where we abandoned it seemed to promise a still more picturesque scenery, being bold, high bluffs of red clay, sprinkled over with white sandstone, and cut into chasms and gullies. Travelling over the hill which led to the prairie, and which we found no trouble in ascending, we passed over a fine rolling country covered with rich grass and a soil fertile though gravelly. The road was the best we had met with since leaving, and at noon we had reached a spring in a hollow or ravine to the left of the road, and five miles from the hill leading to the prairie from the river bottom. Remaining here an hour, we again started, and, after travelling about seven miles, reached White Sandy creek. This stream is fine, pure, clear running water at this time, and grass abundant, but wood scarce at the crossing, though it has a thicket or two above. In crossing from the spring to White Sandy one sees on the left one isolated peak of no considerable altitude, but remarkable as being the only one of the kind. This I called after a favorite negro servant, now on his third trip from ocean

to ocean with me, "Ab's Knob." The road the whole day excellent, the weather clear, warm, and pleasant; distance made, seventeen miles. The Delaware and Little Axe killed a deer this day.

December 18.—Having a twenty miles stretch without water, we were off before daylight, travelling thirteen miles over a road as good as any ever made by Mr. McAdam, and a fine rolling prairie. We encamped in a large valley for two hours, to rest and graze our animals on the luxuriant grass; thence eight miles brought us to "Arroyo Bonito." The evening part of the journey was heavy with sand, especially the last three or four miles. We found Arroyo Bonito a large valley well timbered, watered, and grassed. The latter exists principally in the bottom and on the west side. A large encampment of Comanches had lately left when we arrived, and in consequence game is scarce now, though they had evidently, from the signs left, found it in plenty. We saw to-day the bluff, the Llano Estacado, looming up in the distance on our left and ahead. Tucker found a spring of good water on the right hand side of the road, and within a hundred yards of it, about four miles before reaching this camp. The weather has been cloudy but pleasant all day. We have made to-day twenty-one miles. The Delaware and Little Axe killed a turkey. Our camp is on the west side, under a steep sandstone bluff.

December 19.—We left camp this morning at six o'clock, groping our way to the trail by candle light. In the first seven and a half miles (part of which was sandy) we found a fine spring with plenty of good water, and stopped to water and graze our mules. A mile or two further on we found a beautiful stream, running in clear water over rocky bottom, where we watered again. All this time we were ascending, until at noon, when, after coming thirteen miles, we came to Red Bank creek, where we stopped again to water and graze our animals. Shortly after leaving this place we ascended to the almost level prairie, and, having made twenty miles, encamped on Beautiful View creek, which is perfectly timberless, the others mentioned being nearly so. Our road, with the exception of the first four or five miles, has been of the best possible description, for a large portion of it has been beautifully gravelled, and the remainder a hard clay mixed with sand. Grass on the entire distance has been unusually abundant, even in this well-grassed country. The country passed over has been a rolling prairie; at times the valleys were so deep as almost to amount to or merit the term of hills. This morning, following down the Arroyo Bonita a mile or two, we found we were quite near the Canadian, it being in plain sight, and not over two miles distant; to-day we have travelled parallel with it, and are now not far from it. The Llano Estacado bluffs are plain in sight upon our left.

December 20.—We were up and off this morning at half-past five, travelling several miles before daybreak. The road all day excellent, and over rolling prairie; we ascended gradually until half-past ten, when we stopped to breakfast at a pretty creek on the left of the road, tolerably supplied with timber, and water abundant in large pools; at this place we had made eleven miles. Starting at one o'clock, we pursued our road over the same character of country until sundown,

at which time we ascended the mesa of Llano Estacado, and encamped on its summit without wood or water, but with abundant grass. On our left, three miles before coming to our present camp, we passed the "Rincon de La Cruz," a ravine coming out of the Llano, and having water and grass, with sufficient wood for cooking; but as I was not at that time with the train, it was passed by without stopping. We have made to-day within a fraction of twenty-two miles. Before reaching our camp a fresh Indian trail was passed, apparently not twenty minutes old; this makes us doubly watchful to-night, as well as anxious, lest possibly we may lose a mule or two, to say nothing of train. We have travelled all day towards the bluffs of the Llano, on whose summit we are now encamped; it presents a bold, well-defined outline as far as it can be seen, and is only to be ascended by wagons at certain points; leaving our noon camp we still constantly ascended, but on reaching the top, a broad and smooth prairie spread itself before us. Excepting the wood on the creek on which we nooned, and at the "Rincon de La Cruz," we have not seen a stick of wood to-day, saving a few mesquit bushes.

December 21.—We were up at half-past three and off at four o'clock. Travelling six miles and a half over a road as level as a floor, we came to Aqua Piedra, a ravine containing a fine stream of water, *running* a border of trees and abundant grass; the descent to, and ascent from, the valley was excellent. Remaining here two hours and a half, we started again, and travelling over the dead level plain, we camped for an hour to graze our animals on the prairie. The grass on this plain is everywhere abundant, but of water there is none, unless at times the rains may leave a pool or two standing in the old buffalo wallows. We saw not a living thing but a prairie dog and antelope or two, and a crow, in crossing this extensive plain. Evidences enough exist that years ago buffalo have grazed on its fine grasses, but now there is not one to be seen, or the sign of one less than ten years old. Leaving our last camp, where we rested our animals, and travelling about nine miles, brought us to Rocky Dell creek; to arrive at this place, we pitched off the bluff of the Llano, and found a miserable, treeless, dry bed of a stream, without a stick of timber, and the water in it only discoverable, after considerable search, in a pool in the rocky bed of the creek. We came to this place at night-fall, and found nothing to recommend it but the grass, which, though not as abundant as elsewhere, was good and quite sufficient. Some of our people found some scratchings on the rocks, which the idle Indians had picked on with stones. I do not know what signification they had, or whether any. We made to-day twenty-six miles and a half from the camp at the summit of the Llano to Rocky Dell creek. The Llano is treeless, and, as far as one can see, is one monotonous level plain.

December 22.—Leaving Rocky Dell at five in the morning, we travelled over an undulating plain, with excellent hard soil and good road, for eleven miles, passing a ravine or two on our way, which in the rains may contain water, but are dry at present. At this time we came to Emigrant creek, a good stream of water existing in pools; here we stopped to breakfast; grass abundant, but wood scarce, there being only a few scattering cotton-wood trees growing on the stream. As

we travelled this morning the bluff of Llano was on our left, and rendered the landscape agreeable by its bold and picturesque appearance. Leaving the noon encampment, we traversed a country generally excellent for nine miles, when we encamped on a small stream of water slightly brackish. There was not a stick of timber as large as a man's little finger, or any substitute for wood, such as bushes or buffalo chips, so that we used a little dry wood I had caused to be packed away in the wagons. This country is treeless, except the bluffs of the Llano, which are speckled over with cedars, but unfortunately the road does not run within four or five miles. My greyhounds this evening brought down and killed a fine fat buck antelope; only two were in the race, which was in full view of the whole camp; the hounds, Buck and Fannie, ran in upon and killed it within a mile of the point from which they started; the pace was tremendous, and, take it altogether, it was one of the prettiest bursts of speed I ever saw. The weather this evening looked threatening, and a hard north wind blew for a short time, but at sundown the prevailing wind from the southwest had again established its supremacy. The country travelled this evening has been of the finest character for grazing purposes, and as far as one could see retained the same character.

December 23.—We were up at four and off at five o'clock. Since leaving the escort we travel several miles before daybreak, so that we may stop to rest and graze our mules on the road, and at the same time make a good day's travel. The country this morning precisely the same as yesterday, not a tree to be seen except on the distant bluffs of the Llano. After leaving camp, in two miles and a half we came to a creek similar to the one we had left in every respect. Two miles and a half further we found another, and, travelling eight miles further and seeing no timber, I stopped near a dry-water drain in the prairie, where the grass was uncommonly good, to graze and rest my mules. The men, having saved a few sticks of wood from last night's camp, got breakfast at this place. Leaving our dry breakfast camp, we passed over a rolling country and several ravines, one of which contained water to the right of the road, at a distance of a mile or so, but not discovering it till the train had passed, we continued on three miles further, and found water in pools, and in some places running in a ravine, in which were a few cotton-wood trees; the water was above the crossing about five hundred yards, and the trees below. We made to-day twenty-eight miles. On our left the bluffs of the Llano were densely covered with cedars, and not merely dotted over, as heretofore. The soil to-day has been a little sandy, but the road as good as any we have had. To our right at this camp is a curiously-shaped table mountain, making a landmark to be seen many miles around; it is distant from us about six or seven miles. We killed a beef yesterday which we had worked in a heavily-laden wagon two-thirds of the distance to this point. It was fed no grain, and subsisted entirely on grass. The beef was fit for the Philadelphia market. A book could say no more for the grass on this route.

December 24.—Up at four and off at five. Leaving our last night's camp, we travelled over a lovely country, finding the scenery of the most agreeable and varied character. Towards two o'clock we found water

and a little wood in a ravine, and encamped for breakfast. The water was in pools, and not very abundant. Going along before daylight this morning the Delaware and Little Axe captured two ponies, but discovering sheep tracks in the road, knew they belonged to the Pastores; sent them back. Leaving breakfast camp, up to which we had made thirteen miles and a half, we travelled eleven and a half more without finding water, when, seeing some cotton-wood trees a mile or more to our left, off the road, we drove down to them, and found water, wood, and grass in great abundance. As we proceed the mesa hills seem shut in ahead, so that we look forward with curiosity to what to-morrow will bring forth. The mesa sides are all densely covered with cedars.

December 25.—Up at four and off at five. Travelling up the valley, through the same description of country as that of yesterday, and all the while, with the exception of the last four or five miles, gradually ascending, we reached, after seventeen miles, the Laguna Colorado, a pond of about thirty-five yards diameter, of sweet but muddy water. We reached here about noon, and, as we had marched seventeen miles, and it was Christmas day, I determined to remain at rest for the remainder of the day. This is an excellent camp; wood, water, and grass in abundance, and in the event of a stormy spell, the fine ravines of the Mesa afford ample protection. The valley is very extensive, and seems to contain about half a million acres of good land. I do not know, however, of any water than that of the lake we are encamped on. In it game seems abundant. While we were at work a deer walked fearlessly down to the water's edge, in full view of the whole camp, and, after drinking, stood gazing at us until the Delaware took his rifle and killed it. Our Christmas has been a very happy one. I had saved from our surplus some twenty fine wild turkeys, which had been killed and preserved by the cold weather, so that each mess had its turkey, besides its fresh meat, being only short of bread. We had buffalo, deer, antelope, raccoon, prairie dog, wild turkey, and grouse in our wagons to-day, and enough of all for a fine Christmas feast. The morning threatened a storm, but about ten it cleared, and the day has since been delightful.

December 26.—Up at four and off at five o'clock. By a long ascent we reached a level plain covered with cedar and pinon pine. Pursuing this plain a short distance, we descended to the Arroyo de Pajarito. Before doing so, about a mile back, we passed, on our left, a good spring. At the Arroyo we found water and grass plenty, with a little wood. Leaving at one, we came in eleven miles over a good road, ascending, and a beautiful country, the Cuerbito, (Little Crow,) where we found good grass and water, but little wood, though cedars a half mile south of where we encamped were abundant off the road. Here I met some Mexican hunters, one of whom guides us to-morrow to Mr. Hatch's, near the town of Chaparitos, at which place I propose to encamp to rest our animals. Little Axe having wounded a buck antelope slightly, my dogs pulled him down, near camp, very handsomely. The road excellent all day, and the country beautiful. We made twenty and a quarter miles, and encamped at four p. m.

December 28.—Up at half-past three and off at four o'clock. By

daylight we had made seven miles, when I encamped for breakfast, having discovered water about half a mile off, in a cañon to our left; the road has been excellent all day, being over a rolling, ascending country of great beauty. At noon we encamped on the Esteros for an hour, having crossed the divide between the Pecos and the Canadian, this being the first tributary of the latter. At this point I left my train and road, with orders to the Delaware and Little Axe to follow my horse's tracks across the prairie, and for the train to follow them twelve miles and then encamp until daybreak, when in the same manner they would come on to Hatch's ranch. Accompanied by the Mexican hunter, I arrived at Hatch's where I was most hospitably received at eight o'clock at night. The next day the train came in about noon. Hatch's rancho is eighty miles from Santa Fé, fourteen from Anton Chico, twenty-five from Las Vegas, forty from Fort Union, and one hundred and thirty from Albuquerque. The little town of Chaparito is three miles off. Corn, provisions, clothing, and a hearty welcome may always be found here. This rancho is situated on the Gallinas, a fine, bold, running, clear stream of some twenty-five or thirty yards width; a few years ago it was the frontier settlement of New Mexico, but the frontiers of New Mexico, like those of our western States, are extending, and now the town of Chaparito is beyond the rancho.

January, 1859.—I spent the month of January in making an official visit to Santa Fé, and a social one to my old and esteemed friend Kit Carson.

At Taos, February 7, 1859.—I started this morning to look at the country between Hatch's rancho and the Canadian, on a line nearly east, and by which I hoped to find a nearer road than the one we travelled in coming in. The road we came was excellent, but my expectation in this journey is to go to the mouth of the Conchas river in the Canadian, and thereby shorten the distance, as well as to bring the road by a water-course, instead of leaving the river where we did. If we succeed, our road will follow the Canadian a hundred and eighty or two hundred miles further, and leaving it, the Conchas will bring us to within a few miles of Hatch's rancho and the towns of Anton Chico and Chaparito. Leaving Hatch's, we came, in six or eight miles, to the divide between the waters of the Pecos and those of the Canadian. Here a most extensive prospect opened before us; a vast undulating plain bounded on the north by mesas and to the southward by plains, and isolated mesas stretched far toward the Canadian, and seemed to reach at least fifty miles in extent. Coming off the divide by an abrupt descent, we reached this rolling plain, which we found excellently well watered by numerous streams, though mostly small, covered everywhere with fine grass, and abundantly timbered with cedar and pinon. Having travelled twenty-five miles over a magnificent natural road, we encamped at night on a small stream, with timber in abundance close at hand. A high wind blowing all day, and the weather cloudy.

February 8.—At eight o'clock this morning we were off again, and pursuing the same spacious valley or plain, over a country precisely such as described yesterday, we encamped at one, on a small stream

having water in holes, in one of which I saw fish ; the morning has been raw and threatening rain, which caused me to encamp, after making only thirteen miles; our course, nearly east, seems to be entering a narrow valley, in which I hope to find the Conches ; and after going to its mouth, to return up it all the way back to within a short distance of our camp.

February 9.—Entering the narrow valley spoken of yesterday, which is a mile and a half wide, we emerged, after half an hour's travel, into another vast extent of undulating prairie land, bounded on all sides by mesas, which, instead of rising abruptly from the plain, sloped to it with a rather steep ascent, which was rendered agreeable to the eye by the lights and shadows resting upon its broad breast, as well as by the variegated hues of the different grasses, and the dark green of pines and cedars. Into this wide basin numerous small streams enter, and traversing it, flow into the Canadian ; water was everywhere abundant, and the grass of unsurpassed excellence. After travelling about ten miles nearly east we struck the Canadian. It is at this point a noble mountain stream, clear, rapid, and deep, running over a rocky bed and frequently breaking into sparkling ripples; following it some eight miles we encamped on a small tributary about a mile from the river. The route to-day has passed over a country offering not the slightest obstructions to wagons, and unexceptionable in every respect. Beaver are abundant on the river, but unfortunately Little Axe and the Delaware left their traps at camp, so that we have taken none ; since our arrival at Hatch's they have trapped only seven on the Gallinas. The weather delightful.

February 10.—Leaving our camp of last night, we soon approached the Narrows, or Angosturas, as the Mexicans term it. From all that I had heard, I had looked forward to this place as forming an insurmountable obstacle to a road ascending the river, and was delighted to find, instead of the dreadful cañon I had pictured it, extending for many miles, a place which ten men in as many days would render an excellent road ; it simply requires the loose stone to be removed, and a few gullies filled, to make it perfectly good. On the opposite side of the river there is no obstruction, but where so little work is required it would be idle to think of bridging. The Narrows are caused by a long cape of the mesa impinging on the river, and are not over two or three miles in length. Coming out of this gorge, a country of great beauty opened before us ; the valley of the river, five to seven miles in width, stretched as far as we could see to the eastward, the river running through the centre, with a line of large cotton-woods marking its course, and at intervals heavy groves making out into the meadows on either side ; the soil seemed of great fertility, and as we looked upon the immense tract of waste land, which would feed thousands, we regretted that the want of protection against a few barbarous savages should prevent the occupation by civilized men of such a lovely region. Some distance down the valley we could see smoke arising from Indian (Comanche) fires; and as we were but ten, and had seen all we came to look at (the Angosturas,) we rested our animals for a couple of hours, improving the time by killing wild turkeys, with which the bottom abounded, and then returned to where we first struck the

river ; to-morrow I shall follow it to the mouth of the Conchas, and by that stream hope to return nearly to camp ; the wind being high, moved camp up the Canadian, finding the same broad and level valley, equally fertile with that seen below, and fringed with cotton-wood, hackberry, and willow, and encamped in a thick grove of box elder under a bank, affording us a well-protected camp ; the Delaware and Little Axe having killed five wild turkeys, we supped sumptuously. The Angosturas, or Narrows, are about three miles in length.

February 11.—The morning beautifully clear and the day like one in the early part of June at home. Travelled up the Canadian, finding it a noble bottom, such as heretofore described, until we came to the mouth of the Conchas ; this we found to enter the Canadian where both cañon. The Canadian commences its cañon about a quarter of a mile before the Conchas entered it ; the Conchas we followed from its mouth to our present camp, and found it to run through a cañon all the way, say a half a mile ; how far up the cañon extends I do not know, but shall see to-morrow. The cañon is about one hundred feet deep in places, and accessible quite often where drains from the valley fall into it, and is about fifty or perhaps sixty yards across ; the water is clear, the stream rippling over a rocky bottom and forming large pools of sometimes more than five hundred yards' length and from eight to twelve feet in depth, its average width being about twenty feet. Our wagon has followed over the country to points indicated without finding any difficulty, which shows the easy character of its surface ; grass everywhere abundant and no lack of timber ; the country we are traversing seems a vast basin of undulating surface bounded by high mesas ; it is decidedly the best watered country in New Mexico, and would be considered well watered in any part of the world ; of its fertility the grass is sufficient indication. In the narrow valley of the Conchas we found luxuriant grass of many kinds and a growth of dwarf oak and hackberry ; shells were abundant, hence its name, Conchas, a shell. The Delaware and Little Axe killed two white-tailed deer.

February 12.—Pursuing our way up the Conchas, we found it coming out of the cañon in half a mile ; we travelled up it through a fine bottom, finding it cañon quite often, and breaking out from its rocky prison to run through meadows such as we found at our start this morning ; the cañons were all short, and contained narrow strips of grass and meadow land in them ; for awhile we left the river, and crossing the spur of a mesa we came to the valley again, here magnificently wide and beautifully covered with grass ; the entire bottom could be easily irrigated, if such labor should prove necessary, and the soil which is as rich as any to be found be made to support thousands of families. We encamped near our camping place of the first day out ; here we found the Conches fork—one arm bearing off to the northward and westward, and the other nearly due west.

February 13.—Following up the western fork of the Conches, and passing many small cañons, all of which contained water, we turned off, after travelling eight or ten miles, and crossed the divide to the northwestern fork of the Conches ; we encamped on the head of this stream at its first springs. The country as heretofore described.

February 14.—Left camp this morning at 9 o'clock, and crossing an easy divide came into the lovely valley of the headwaters of the main Conches; we found it running through a valley probably two miles in width; the valley level, and the course of the stream marked by a line of cotton-wood trees, which occasionally formed groves of considerable size, while the mesas on either side were covered with cedar and pine; leaving behind us the valley and turning to the westward we passed a divide of such easy ascent as to appear a level plain, and passing through a puertocito or gate struck the valley of the Gallinas. From our exploration terminated to-day, there no longer exists a doubt that a line of road may follow the Canadian river and its tributary, the Conchas, from our first crossing near Fort Smith to within fourteen miles of Anton Chico, having a broad level river valley bearing wood, water, and grass in great abundance for its entire length, a distance of six hundred miles.

February 26.—Left Hatch's rancho this morning at ten o'clock. We have passed two months resting our animals there, and found good accommodation. Hatch settled a year or two since on the Gallinas, then an unsettled country, and by the fruitful product of the valley has made himself independent. When we arrived he had already collected some ten thousand bushels of corn, which he was selling at over one dollar a bushel to the government and others. He plants extensively, and buys from his neighbors, also settled on the fertile lands of the Gallinas, and being a shrewd man makes large profits by taking contracts for the delivery of grain or selling it at his house. Passing over an undulating country, with high mesas on our right and an unbounded prospect to our left, came in fifteen miles to the Pecos, where I encamped. In all the country travelled to-day, wood and grass have been abundant—of cedar and pine. We crossed the Pecos at the mouth of a cañon, and some five miles above the Anton Chico. Instead of passing by the latter town we took a new line, by which we saved four miles in distance and found a better road.

February 27.—We were off this morning at seven, and ascending to the mesa from the river by a very short hill of a hundred yards we reached a level country densely covered with cotton and pine woods, and ahead immense tracts of open country covered with grass. Passing over a perfect natural road we encamped at ten o'clock for breakfast after making eight miles. This evening we made nearly twelve miles, through a country which charmed the eye at every step; cedar and pine covered the surface densely, but not so entirely that open glades and quiet little valleys were not abundant. As we advanced, mesas of great height and picturesque appearance rose on both sides of us. At four we encamped in a beautiful valley, and sent our animals up the mesa to drink at a lake of fine water which exists there; near it was a spring in the head of the ravine which drained the valley. We passed this morning several dry lakes, from which the water had just passed; it must be remembered that this is the driest season of the year; the weather delightful.

February 28.—The last day of winter, and all of us are heartily glad of it. We were up at four and off at seven. In a mile or two after leaving camp we came to the entrance of Cañon Blanco, and fol-

lowing out to its head, we stopped to noon where a ravine coming close to the road supplied water. A Mexican with me, who knows the country, says there is a lagoon or lake about three miles from us, at the head of the ravine in which we found the water. The country to-day is equally beautiful with that of yesterday. Our road was up the Cañon Blanco. This is a chasm in the mesa, and about a mile in width, its smooth surface offering not a single obstruction to wheels, and so firm that ours left scarcely an impression. On the right the rock rose a sheer precipice in places to the height of five hundred feet; on the left it broke off into steep hills, covered thickly with pine and cedar. It seems inhabited for its whole length by prairie dogs, which kept up an incessant barking as we passed their villages; we killed several of them. To get out of the cañon we ascended a hill, and passing through a country such as described heretofore, encamped at a lake. The whole country, from elevated points, seems like that described yesterday, abounding in timber and grass.

March 1.—Leaving our camp, we traversed an undulating plain, and the day, which had been beautifully clear, turning out stormy, we encamped under a mountain, where a plentiful supply of timber afforded good shelter for ourselves and animals. At noon I visited the Artesian well of Captain Pope. I had previously seen this work, and admire the industry and perseverance with which it is prosecuted. Should the captain succeed, he will have rendered better service to New Mexico than any one alive; and if he does not, he will have the satisfaction of having tested an experiment of great magnitude in the most thorough manner, with a degree of force and spirit deserving all praise. The location is beautifully chosen, and I trust before we return to find a stream of water running down the great valley, at the head of which he is boring, and which requires only that to render it of the most lovely and desirable character. For myself, I have no doubt of his success. We made to-day fifteen miles.

March 2.—It continued to storm on us all night and day. About an inch of snow fell, which, blowing in our faces, rendered our march to-day of great toil. We made sixteen and a quarter miles, and encamped in the San Antonio Pass—the road very good all day—about half of it over rolling plains and the remainder through the pass, which is wide, but shut in by high mountains, covered densely with pine. As far as we have entered it, the pass is easy wagoning.

March 3.—Left camp at noon and went into Albuquerque. Ten miles took us out of the pass, which is an excellent one, and the remainder of the road over a descending grade, very smooth all the way to Albuquerque. Timber becomes scarce after leaving the pass—near Albuquerque there is none. The Delaware and Little Axe killed two deer and some turkeys, which abound in the mountains.

March 8.—From the last date to this day spent in Albuquerque preparing for journey. Left in the evening and encamped for the night in the sand hills. These hills rise gradually for about seven miles, and form the very worst part of the road from Albuquerque to California. The weather warm and pleasant.

March 9.—Leaving our camp in the sand hills, we marched eleven miles to the Puerco; found the Puerco well worthy of its name; it was

running rapidly, and the water and mud mixed in equal parts. This stream requires bridging, as it frequently delays travellers for days; at other times it is entirely dry. The expense of bridging it will be from five to seven thousand dollars.

March 10.—Leaving the Puerco, we came to Sheep springs, which were filled with water, and a small stream issuing from them. The country from last camp rolling and road sandy; grass is scarce at this season, but wood at the springs plenty for fuel. The day exceedingly disagreeable, with a high wind.

March 11.—In seventeen miles, over a road for the most part sandy, we came to the Laguna, which is a large marsh, and abundance of water; encamped near the lake; grass all grazed off; no wood but a few small cedars. Our road to-day has been through a valley, in many places twenty miles in width, and bounded on both sides by mesas.

March 12.—Leaving our camp at the Laguna, we passed over an excellent country up the valley of the Gallo to the Ojo del Gallo. Here we found wood, water, and grass abundant. We encamped near the old camp of last year. The Delaware and Little Axe trapped two beavers, which are quite numerous in the stream below where the road crosses.

March 13.—Remained in camp all day. During the night a slight powdering of snow fell on us. The Delaware and Little Axe caught two more beaver.

March 14—Camp left the Gallo, and following up the stream a short distance, turned the point of the hills, and bore away for a spring containing abundance of water, but lying three or four miles off the road, to the right. I remained behind, with my negro servant Absalom, to kill ducks, which abound here. We killed some sixty to eighty fine canvas-back, red-head, mallard, and spring-tail, and spent the night at camp. We took no beaver this night, as the Delaware sent his medicine off with the wagons, not knowing we would pass another night on the stream.

March 15.—Leaving the Gallo, our road turns a point of the hills which comes down towards the river, and in about four miles forks. One trail goes off to a spring, and the other directly towards the Zuñi mountain. That which goes to the spring comes in again, a few miles beyond, and loses about four miles. The valley traversed in coming to the Zuñi mountain is sometimes fifteen miles in width, the ascent a gradual inclined plain, so that although a great altitude is attained in the twenty-five miles which intervene between the Gallo and the "Agua Fria," a beautiful spring, which breaks out quite near the summit of the mountain, one does not perceive it, and only the test applied by instruments would convince a person of the fact. The road is excellent, and large, fine timber and cedar exist in the greatest abundance—grass luxuriant. We arrived near the Agua Fria at night. It is the last stream or spring we shall see flowing towards the Atlantic until our return, as the back-bone of the mountain divide of the waters flowing to the Pacific, and those going into the Atlantic, is within a mile of it. The valley traversed to-day

narrows towards the spring, but the hills on either side slope easily towards the centre.

March 16.—We are lying by to work the road at a steep point, near the summit. I rode to the summit this morning, and found it hard to realize that we had reached by so excellent a trail, and without a single hard pull, the dividing ridge of the dreaded Rocky Mountains. The country here, even at this forbidding season, is beautiful, and the forests of pine and abundant grass render it particularly favorable for settlement. I presume, of course, the small stream found here is not the only water in the vicinity. So far, we have found two points which require working, and these done, shall proceed onward. To-morrow I shall despatch two wagons to the Indians at Zuñi, in hope to find corn there, and the Indians in a selling humor. In this respect all Indians are singular. They either sell readily and for little or nothing, or not at all, and are as capricious in their dispositions as possible. We find snow here in patches. Weather pleasant.

March 17.—Still at work at the road near the summit. We are cutting down the rock, making a side cut along the steep ascent, on the four degree grade, and principally on solid sandstone rock, making a wall on the lower side, the stone laid up dry and coming sufficiently above the road to form a parapet. This promises to be both a permanent and excellent piece of road, when completed. Weather pleasant.

March 18.—Still at work on the road. Doctors Floyd and Spiller walked to the summit of a mountain, some distance from camp. They describe the mountain as an extinct crater; the view beyond very extensive, and country covered with a dense forest of pine as far as vision reached. Weather pleasant.

March 19.—Still at work on the road; we shall move back on our tracks to-morrow to work a part some six miles behind us.

March 20.—Went back six or seven miles and worked two bad hills with all the men, and at sundown had completed good roads around them, working hard all day; whipped two of the *most respectable* citizens for an attempt at stealing my sheep; we drive with us two hundred and fifty of these animals for food, which saves the transportation of provisions; the day cold and windy.

March 21.—Left camp and passing the back bone, on the road we had made, came to Inscription Rock; the road heavy with mud, caused by the frost coming out of the ground; having in my previous exploration described the road to Inscription Rock, shall make no further account of it than to say that grass and wood are abundant, and the spring at the rock unfailing and sufficient.

March 22.—Taking Doctors Floyd and Spiller, the Delaware and Little Axe, I started to explore the valley of Inscription Rock. Turning back on our road of yesterday, nearly to the head of the valley, I crossed to the opposite or northern side; following down the north side of the valley, came first to a dry ravine, which, however, has evidently at times much water in it, as the remains of a large Indian encampment proves; going on to the westward close under the mountain, and crossing a sandy piece of ground, for a mile or more, I

found another of similar character, and having old Indian signs about it; beyond this, perhaps two miles, discovered a large spring in a grove of small oak; this spring was about forty feet in diameter, a perfect circumference; good solid ground around, even to the edge of the water, and issuing from it a rill of clear sweet water; the spring is seven feet in depth, a thicket of cotton-wood grows just below it and a long line of red willow, of small growth, marks the course of the rivulet which flows from it; Inscription Rock bears by compass SW. by W., distant about eight miles; between this point and the rock the grass is everywhere abundant and the soil good, but stony in parts; at the spring, where we are at present encamped, are several of great size, one of them of over four feet in diameter, and abundance of small oak; leaving our noon camp and crossing a low sandy ridge, we came into a rich sheltered valley; here, fringed with cotton-wood, we found a sparkling fresh flowing brook; it was of a size which in the eastern States would be called a fine trout stream, and was as lovely a spot as one would desire to see, flowing, as it did, over rocks, and making beautiful little cascades of clear bright water; some enormous pines grow in the bottom and much cedar, with a bark resembling white oak in every respect; the distance from the spring to this stream is about two miles NW. and its bearing from the Inscription NE.; remaining awhile at the stream, we pursued our way along the base of the mountain, and crossing the dry bed of what is evidently at times a large stream, we came at nightfall to another dry bed, where we encamped, deferring until to-morrow a search up it for water; in the bed of this stream is found *limestone* in abundance, of a grey color and finest quality; in this stone we found innumerable fossils, some of which we took to camp with us; killed a catamount this evening.

March 23.—This morning we followed up the dry bed, and in a mile or two found abundant running water. In many places the solid limestone made cañons of twelve to twenty feet in height. Returning at ten, we raised camp and pursued our journey, still keeping the northern side of the valley and the base of the mountain, which is densely covered with pine of largest size, and the valley rapidly becoming green in grass. Leaving camp and pursuing the same course, at the foot of the mountains, about northwest, we came in a mile upon another fine stream, larger than the first. This was fringed, like the other, with cotton-wood and oak, and in a grove of giant pines, on a little mound, we encamped for noon, Inscription Rock bearing about S. by E. The bottom lands, as well as the hill sides, are of the richest quality of soil. Following down the stream after nooning, we saw on the opposite bank the ruins of an ancient building, which we crossed to examine. We found it larger and more perfect than those on the summit of Inscription Rock. The wall remaining was about ten feet in height, built of stone, all of the same size, and regularly laid. Opposite, in strange contrast with its massive appearance, were some deserted huts, built of mud and twigs, the houses of the present inhabitants of this country. It was ancient and modern Greece. Leaving the stream and pursuing our course, and passing over a soil of incomparable richness, we came at sundown, after travelling about four miles, to another brisk running stream, on which we

encamped in large pines at the foot of the mountain. This stream was fringed with small willow, but no cotton-wood on its banks. Inscription Rock bears about S.S.E. I killed another catamount this evening.

March 24.—This morning, breakfast on wild-cat being over, we started to explore the creek to its head. We found much rich copper ore on its banks. About a mile above our camp several rich and pretty pieces of malachite were found. Following up the mountain, we came to a grove of quaking aspen. Above this the stream flowed, almost to its head, over a broad flat rock, which seemed as though it might be the very backbone of the world. We found the stream had three forks. Two we explored to their heads. Both issued out from under the rocks near the summit of the mountain. The right hand fork is the largest, and bursts out of the mountain side a full grown brook, and goes on its way making cascades over the rocks, rushing and sparkling through crevices in fine style. In ascending these forks we found several spots where cat-tail was growing luxuriantly, and which gave unmistakable evidence of living water. The view from the summit was of the grandest description. We found the mountain covered to the summit with lofty pines, and but little snow, scarcely any upon it. Leaving this camp and travelling about five miles, still along the foot of the mountain and over the richest description of soil, we arrived at the largest stream we had yet seen. It would be impossible to do justice to the view from our present camp. Guided by the roar of the water, we followed up the stream a hundred or two yards above our camp, and there found it issuing from the mountain, roaring and boiling, and struggling among the rocks of the cañon. Looking up toward the mountain, up the bed of the stream, nothing could be wilder or more savage. The powerful stream pent up in the narrow, solid rocks, seemed in torture to get free, and was twisted and turned from its arrow-like career at every inch by the rocks which stubbornly opposed it. At times it broke with tremendous bounds in cascades, and at others formed deep whirls and pools of foam, always violent, restless and noisy; the steep sides of the mountain, even to the verge of the cañon, and where there was room within it uncovered with pine, and on all sides, huge rocks and broken trees, with occasional patches of snow. Turning from this scene of savage grandeur, just below and stretching for miles was a quiet, smiling, abundantly fertile valley, through the centre of which the fierce stream above flowed as peacefully as though its waters had never been vexed and tortured by the rocky walls of a cañon. On the opposite side, about five miles off, a high mesa of red and white sandstone rose perpendicularly, its summit and its base covered with cedar. Altogether it was such a scene as, in all my wanderings, I have never looked upon before. This stream cuts directly across the valley we have been traversing, and enters a cañon on the opposite side. The whole valley through which it flows is as fertile as it is possible for land to become, and timber everywhere abundant. Its course is nearly north and south. Here, also, we found, in a hill on the side of which we encamped, and quite near to where the river comes out

of the cañon, rich copper ore. From this point Inscription Rock bears about SE. by S., and distant some eighteen miles.

The climate of this region is most unexceptionable; the days warm, the air pure, the nights cool, without being too cold. The stream is of the size of the Pecos at San Miguel or Anton Chico. Above our camp, some three hundred yards within the cañon, is a natural bridge, over which part of the stream flows in spray, the main body of it passing beneath. It is of wonderful beauty. Above, as far as we explored the stream, it formed a succession of exquisite cascades all the way.

March 25.—To day I return to camp, my duties requiring my presence there; I shall cross to the opposite side of the valley, and return by it to Inscription Rock; my exploration has been every way most satisfactory, disclosing, as it has, a country rich in everything that makes the habitation of man prosperous and happy; to New Mexico it is of incalculable importance, and I trust to live to see my labors of the last few days rendered useful by the enterprise of our people, and some day to find flourishing settlements and prosperous communities where our footsteps have trodden, in what is now a wilderness, only known to the wretched Indians who now inhabit it; when I left camp this morning it was my intention to have returned home to the Inscription Rock, but the valley looked so beautiful to the northward that I determined to go to its head; following it up through the same beautiful scenery, we came to the head in about six miles, in a noble pine grove; looking beyond it seemed to droop by rapid descent into a similar country, which I felt every desire to explore, but the want of time prevented; at the head of the valley, about a half a mile, looking towards the north, I found another small spring up a cañon, and near it we stopped to noon and graze our animals on the fine green grass, here from four to six inches high; after noon we crossed to the opposite side of the valley, and turned homeward under the high bluffs which bound its western extremity; the base and sides of these bluffs, and wherever a foothold is afforded, are covered with cedar and pine, and in places the rock is cut into the most fantastic shapes by the action of the water; travelling along the slopes, and sometimes in the valley bottom, we found the two first streams described to unite and form a large lake of about a mile in circumference; this found its outlet through a cañon, leading towards the Ojo Pescado and Zuñi rivers; where the last-discovered stream empties I cannot conjecture, but think it probable it finds its way underground after, leaving the valley, to the Rio Colorado Chiquito, or perhaps sinks altogether in the intervening sands; keeping our course towards camp, we reached it at nightfall, and immediately prepared for a start in the morning.

March 26.—We left El Moro, Inscription Rock, early, and travelling over our old road, which we found excellent, and well timbered and grassed, the surface being nearly level, and without a hard pull, we nooned at the beautiful spring of the Ojo Pescado; we crossed the Zuñi river before coming to and after leaving this spring, a mile on either side of it; the river was full and running rapidly; it was about twenty-five feet in width and three in depth; it is sometimes quite

dry where we crossed it, though water is always to be found in it below; after nooning we travelled on to within ten miles of Zuñi, where we encamped, near the river, in good grass and wood plenty. Going towards Zuñi it is always well to encamp at a distance of ten miles or so from the town, as nearer one does not find good grass or wood, the Indian sheep and ponies requiring it nearly all, besides which, most of the valley is cultivated in corn and wheat.

March 27.—We entered Zuñi to-day. We had a wagon, under charge of Mr. George Beale, three days in advance, trading with the Indians for corn, and having obtained a sufficiency, we moved on about six or seven miles from town to a good camp in the cedars, and about half a mile from the river. The day was very disagreeable, with a high wind blowing the dust in every direction, reminding us of Washington City in a winter gale. Before reaching the town about two miles we crossed the Zuñi river for the last time, and already beginning to lose a large portion of its waters in the loose soil of the valley. The old governor met me in the town with many compliments and congratulations, and bearing in his arms a box containing my "artificial horizon," which I had left with him in passing last winter. He told me the charge had been a great burden on his mind, and he was glad to be rid of the responsibility; rewarding him with several blankets and numerous pieces of calico, I sat down in his house to hear the news. He had a long list of grievances. The United States had persuaded him into an alliance with the troops as auxiliaries in the late war with the Navajoes; his people had fought with our troops side by side like brothers; the United States had found it convenient to make peace with their enemies, and had left their auxiliaries the prey of their powerful and numerous foes. I told him I thought it served him right for meddling in things which did not concern him, and warned him for the future to avoid "all entangling alliances." I left town after giving some things to the Indians and trading for some corn meal, and through the dust, which was almost blinding, we rode to camp.

March 28.—The day being still very unpleasant, with a high wind and occasional drifting fall of snow and hail, we did not leave camp, which was well sheltered by the cedars in which I had placed it.

March 29.—Leaving camp early and marching about twenty-five miles over a country already described in my previous journey, we reached Jacob's well. The day cold and raw, with a most unpleasantly strong west wind right in our faces; there is no wood at the well, but a quarter to half a mile abundance, and grass plenty. The road for the day has been through a cedar forest and prairie country well grassed.

March 30.—Worked hard all to-day with fifty men on the road at a place mentioned in my last year's journal, where the prairie dipped suddenly, making an ugly hill; by night we had completed an excellent road by a side cut from the summit to the plain.

March 31.—Left Jacob's well, and travelling ten miles came to Navajo springs. These springs I have before described; they break out on the flat plains, and travellers should be most particularly cautious not to approach them in the night, as there are places where a

man or beast falling into the mud springs, as they are called, and which are found near the water, would be entirely lost. I myself stepped incautiously too near, and though on the brink sank instantly to my waist, and but for being so near the brink would have gone out of sight as quietly as in water. Emigrants approaching them should place a guard at each to keep stock from getting in, as the ground to the very edge of the quagmire is firm, and one step would occasion the loss of man or beast. There is no wood at the springs, but plenty a mile east, and good grass. Leaving the springs we encamped on a small creek, with water in holes sufficient. The line of the creek is marked with scattering cotton-wood; cedars found on the hills to the left near where the road crosses it, and grass is abundant. I found this stream running full last spring, and the drift-wood in the bottoms shows it at times to get up a famous current. I have called this stream Long's river, after one of my party, E. P. Long.

April 1.—Leaving our last camp we passed a rough day in getting to the Zuñi. The road was good over our old trail of last year, but the weather abominable; the wind was high, and every half hour a squall of mingled snow and hail directly in our faces. The sun had risen clear, and we had congratulated each other on the prospect of a fine day, but in half an hour, as if to make April fools of us, and keep up the proverbial reputation of the season, the face of things changed, and a more unpleasant day I have not passed on the journey. The evening was, however, calm, and we found an excellent camp, the only good or even tolerable one for wood on the river, in a little ravine which comes in about a quarter of a mile below where the road crosses to it. About nine miles before reaching this stream the road crosses and follows down the right bank of another large sandy bed of a stream, which sometimes runs full, and at others is dry, but water may be had by digging at any time at the point indicated in my last year's journal; at this time it was above ground, and we watered all our stock at it. At our camp this evening we dug about a foot, and found plenty of water, which I presume may be done at all times when there is not found running water in the stream, and there exists necessity for it.

April 2.—Started at seven, and travelling twenty miles reached a good camp on the Little Colorado, about two miles below where we first struck it. In following down the Zuñi one finds off to the left a few scattering cotton-wood about a mile. I think we are on the same stream on which we encamped night before last, and which comes into the Zuñi, making a broad sandy stream, about six miles below where we encamped on the latter. The weather cool and almost cold. I had sent the Delaware and Little Axe ahead a day, and on our arrival here found they had taken four fine beavers, one of which was the largest I have ever seen. Contrary to my former experience of this stream, and adding greatly to our comfort, I found it quite clear, though much lower than I have ever seen it previously. I changed the location of the road where it comes to the river. I had made our first road around a projecting point of hills, which obliged one to leave the bottom and follow for some distance the sandy bed of a creek, which I supposed at the time never would afford an obstacle, but returning last winter I found it too deep to cross even with packs. I

carried the road to-day around close under the hills, avoiding entirely the creek, and found the travelling excellent, excepting at a small ravine, which was steep and deep; this I bridged by filling it with rock laid up loose, so as to offer but little resistance to the drainage of water.

April 3.—Remained in camp all day. We drew our seine in the river, but caught only one fish. Some of our party took a few with hook and line. They were fat in appearance, with fine white, silvery sides.

April 4.—Left camp at half past six o'clock, and travelled down the river twelve miles, working the road in many places. Little Axe took a beaver, and the Delaware killed a porcupine. I find gypsum abundant in the hill sides which bound the broad meadow bottoms of the river. San Francisco, with its frosty head, in sight this morning, also the Rabbit Hills to the north. These are curious looking points, of considerable height, which seem to run almost straight up out of the plain north of us.

April 5.—Up at four and off at six o'clock. Still down the river travelling slowly and working on the road where it requires it. We find antelope and deer abundant, but shy. Little Axe took a beaver. The grass, though still dry, is as plentiful as possible, and wood everywhere. We find amongst the drift logs on the river banks large pieces of black walnut and pine; and it is to the region from whence these come I purpose following the river on my return.

April 6.—The camp, under charge of Mr. George Beale, moving slowly down the river to the opposite side. Here we found a curious stream flowing into the Colorado Chiquito from the south. It was a swift-flowing brook of clear water, about half-leg deep, and one might approach its banks within a few feet through the thick-growing grease wood without discovering its waters. Just above where we struck it the appearance of the stream was that of a regularly constructed canal. Here it was about twenty-five yards in width and some six or eight feet in depth. We found otter and beaver sign in every foot of its banks. Ascending it a few miles, I found it to cañon, and five or six miles further towards its source it presented a curious spectacle. Approaching the edge of the chasm, it made our heads dizzy to look at the stream below. It was a sheer precipice of a hundred yards in depth, and at the bottom the water whirling through with the greatest rapidity. As far as we could see this cañon extended, getting higher and deeper, until it reached the edge of a ridge through which the stream had cut its passage. Yet it must come from a valley country beyond this ridge, as we saw much beaver-cut wood among the drift brought down by its current, and the cañon has none, nor is there any of any description upon the banks of the stream as far as we could trace it above. The Delaware and Little Axe took two beaver.

April 7.—This morning we scratched in a hill side, on the summit of which were the remains of an old Indian pueblo of the race who once inhabited this region, but who have passed away without leaving a single clue as to their people or times. We exhumed a much decayed skeleton, the bones of which were too much decomposed to bear handling; on the forehead was a small earthenware vase, and one on

each side of the body ; these we took out carefully, and I hope will be able to carry them back with us. I also found several arrow heads of agate prettily worked. The Delaware and Little Axe took two beaver. Leaving the river I overtook camp, and was pleased to find that Mr. George Beale had discovered an excellent rock ford, a most valuable matter on this river, where crossing is frequently rendered difficult on account of the muddy character of its banks, besides giving a fine foundation for a bridge, when one is built ; it is the only rock bottom yet discovered on the river ; the bank on the opposite side had been worked down, and an excellent road made up it, and the whole train crossed by Mr. Beale before we arrived ; almost as soon as we got to camp the mules were hitched up and we were off. I have stated in my previous journal that the road here leaves the river for a time, say thirty-five miles, to cut off a bend which the stream makes to the northward. We travelled twelve miles and encamped for the night, where an old road ascends a steep mesa.

April 8.—We were up early, and looking for a more favorable place to ascend the mesa and make a good road, discovered a spring ; it seemed almost too much good fortune, and was just in the place where I should have put one if it had been in my power, making, as it does, the easiest of drives across the cut-off, and obviating the only objection to leaving the river. We went hard at work at the rough side of the mesa to make a road up it—an uglier place is hard to imagine—huge boulders lay on its steep sides in every direction ; but with fifty willing hands a good deal may be done ; worked all day. The Delaware and Little Axe took two beaver.

April 9.—All day hard at work on the road up the mesa. I have had the spring cleaned out, and a fine basin of considerable size made to receive its waters, which are excellent. The Delaware and Little Axe took two beaver.

April 10.—Worked hard this morning at the descent of the mesa, and having crossed it travelled down the river to the point, at which we shall leave it ; road excellent.

April 11.—The day windy and disagreeable ; worked off the steep pitch at the mouth of Cañon Diablo and travelled fifteen miles to Walnut creek, in which we found abundance of water in holes and large pools. Shortly after our arrival at camp the water came down in a full stream, filling the whole bed of the creek, and making a stream some thirty or forty yards in width and two or three feet in depth ; we have abundance of drift wood and a fringe of small timber growing on the creek, walnut and hackberry. This morning I went off the trail some miles and struck the Cañon Diablo ; it is appropriately named, being a chasm in the earth, with perpendicular rock sides, in places a hundred and fifty feet in depth ; the bottom is well supplied with black walnut, cotton-wood and hackberry, and we could see, looking down into it, larger pools of water, which in rainy seasons would become torrents ; but for this cañon the road could be shortened to the Colorado Chiquito twenty-five miles ; it might be easily bridged, as the rock affords every facility for solid foundations on both sides.

April 12.—We are now at the foot of the San Francisco mountain, and a light snow is falling, which melts almost as rapidly as it falls.

Travelled seven miles and encamped in some cedars by the road side. We are glad once more to see the green grass ; at Walnut creek it was quite green, and seems to improve as we advance.

April 13.—Leaving last night's camp we travelled to Cosnino Caves and stopped to noon ; at this place we found, as at Walnut creek, a booming stream of water filling the whole bed of the creek ; after nooning came on about seven miles further, and encamped at a steep pull out of a hollow, with the view of working it in the morning ; Little Axe killed an antelope.

April 14.—Worked hard all day until evening at the road, removing large rocks and grading it ; in the evening we drove on some six miles, ascending a rocky mesa, which I also worked, changing the location of the road at this point to an ascent offering a better grade ; we found the water-holes in the valley which we dug last year full, affording us an abundant supply for our camp and animals ; the Delaware killed an antelope.

April 15.—Worked the road in places, and travelling seven miles arrived at Le Roux spring, the weather delightful ; no one could pass through this country without being struck with its picturesque and beautiful scenery, its rich soil, and its noble forests of timber ; the view from our camp of this morning is unsurpassed in the world ; the soil is a rich black loam, the grass, gramma and bunch equally mixed, and the timber, pine of the finest quality and greatest size ; water at this season we find everywhere, nor is there at any time any lack of it at this place.

April 16.—Leaving Le Roux spring we travelled four miles, and encamped in the forest, where the green grass afforded abundant pasture ; the road in places heavy with mud.

April 17.—Passing out of the forest in a mile and a half we came to a beautiful prairie some five miles in breadth and three times that in length ; at the western extremity of this prairie, and within a few hundred yards of the road to the right is a spring ; as it is not large, I determined to improve it, and therefore camped for the day and put all the hands to work to dig it out ; it will then supply abundant water for parties of any number ; the prairie is surrounded with pine timber, and many beautiful groves growing within it ; numbers of deer and antelope bounding over its green turf make it peculiarly attractive, while the magnificent San Francisco mountain, capped with eternal snow, renders the landscape perfect ; the Delaware killed an antelope.

April 18.—While we were busily engaged in digging out a large basin at the spring this forenoon, I heard exclamations of surprise from the men, and looking down the valley saw two men approaching rapidly on dromedaries ; I recognized at once the white Egyptian dromedary, my old friend of last year ; as they came nearer I saw that one of the men was S. A. Bishop, esq., and the other Ali Hadji, who accompanied me on my former expedition ; they had glorious news to tell me ; I had sent my clerk, F. C. Kerlin, by El Paso, to California, to say that I should take only provisions to last me to the Colorado, and expecting Colonel Hoffman with the troops would be there to pack my camels with provisions and meet me at my crossing

of that river ; Colonel Hoffman had gone to the river to reconnoitre, but the Indians having attacked him he returned to the settlements for reinforcements ; Mr. Bishop knowing I would be at the river about the time set, and that Colonel Hoffman with his seven hundred troops could not get there in time to meet me, as they intended to travel to Beale's crossing *via* Fort Gaines, fitted out an expedition of forty men, and boldly came on to the river ; here he was met by a thousand warriors flushed with their successes over the emigrants, and rendered confident by their skirmish with the troops ; they immediately attacked him, but did not calculate on the character of the men he had, or the deadly efficiency of the frontier rifles in the hands of frontier men ; he killed two out of every three aimed at, and, in a brilliant battle, completely routed them ; he then crossed the river and remained in their village for a number of days defying them ; then so completely was the spirit of this formidable tribe broken, that he divided his party, sending back twenty, leaving a strong garrison of six at the river, and with the remainder came on to meet me. On the second day after leaving the river he was again attacked by two hundred choice warriors, anxious to wipe out the disgrace of their late defeat. These, with his small party, many of whom were beardless boys, but *frontiersmen*, he routed, killing four at the first fire. As he approached the river, four men of the mail party, which has been making fruitless attempts for nearly a year to get a mail over the road, joined him, but on seeing the number of the Indians their hearts failed them, and two turned back. The mail was brought on my camels and delivered to the agent, Mr. Smith, who was travelling with my party ; and having no means of sending back the mail he brought, and as the camels after meeting me turned back to the Colorado, it was transferred to the back of one of them, and now returns with us. Thus the first mail of the 35th parallel was brought on my camels both ways, and never would have come until the establishment of a post, as the men who accompany it affirm, but for Bishop coming under my direction to meet me. In the evening we hitched up and came over to Bear spring, about four miles further on. This is a fine locality for emigrants to lay by and recruit their stock, as there are several fine springs within a mile or two around the base of the mountain which afford abundance of water ; and the grass cannot be surpassed, and the forest filled with game in plenty. Little Axe killed two antelope, and the Delaware a deer.

April 19.—Leaving Bear spring we came to Cedar creek in eight miles, where we found plenty of water in the same large pool in which we found it in our first journey of exploration. Here we remained three hours and a half, and then coming ten miles further, stopped for the night near King's creek. The Delaware killed an antelope.

April 20.—We came in three miles and a little over to King's creek, where we found a pool of water of some hundred yards length by fifteen in width, and about four feet deep. Our camels with their solemn faces make our camp look like old times again. The Delaware and Little Axe killed two antelope. Leaving King's creek, and travelling eighteen miles, we encamped without water, but in good green grass ; cedar and pine abundant. The whole location of this road I

shall change, carrying it by my trail of winter before last. By this means I shall save twenty miles in distance, gain two waters, and pass over ground equally as good as that now travelled, which, however, is excellent; but the saving in distance and the gain of two waters warrant the change.

April 21.—Leaving last night's camp, we found water near where the road ascends a short mesa. But being near, we came on to Alexander's cañon, and found water and grass in such abundance that our mules soon filled themselves. It is forty miles by the present road to our noon camp, on King's creek, of yesterday. By the cut-off and new road I shall save exactly half of that distance. On account of these contemplated changes in its location, I shall defer making it until I replenish my provisions and corn. A slight shower of rain this morning. The Delaware and Little Axe killed each an antelope. In this record of game killed, I only mention that killed by those two, who are regularly employed as hunters, and none taken by the rest of the party.

April 22.—We left Alexander's cañon at four this morning, and arrived at Hawley's cañon at eight o'clock. Here we found the water, as on my two previous journeys, abundant. I desire to say particularly of this water, or rather of these waters, that they are not springs, but large tanks in the rocky bed of the cañon, containing a great deal of water. There are three of these tanks, two of which are directly at the camping-ground, and the other nearly two hundred yards below. Going westward a mile and a half before reaching this place, one sees to the left, about a quarter of a mile from the road, a ravine or cañon; about a hundred yards down this is a hole we dug out on my first journey, and which I found full of water this morning; following down the cañon a hundred yards further is a spring; about the same distance further down, a small ravine comes into the cañon, and by going into this some fifteen or twenty yards is another pool of water. Some mile and a half or two miles after leaving this camp, (Hawley's cañon,) to the right, is a spring and tank of water; also, to the left of the road a quarter of a mile, and about four miles from here, is a large pool of water, which I think is spring water, and is, to the best of my belief, in the same cañon as Smith's spring, and the same water. In travelling this road with stock, one would do well to lay in here a supply of water, as it is thirty-five miles from the last-mentioned water to the next. The grass and wood in this region is everywhere excellent. The wood is principally cedar and pine, and in forests of great extent, but with open glades, which divide with the woodland the whole surface of the country. Little Axe killed an antelope. Leaving Hawley's cañon, at which we stopped to noon, came on to Dornan's Pass, described in my previous journey, where we passed the night. The Delaware killed, to-day, the first big-horn or mountain sheep we have seen on the road. It must have weighed, when dressed, a hundred and fifty-five pounds.

April 23.—Travelling through the level valley described in the former expedition, with the Aztec range on our right, we came, at dusk, to our old camp at the water holes in the rock. These generally contain several barrels of water, but the camels and loose stock which

I had sent on to Hemphill's springs had exhausted nearly all the water. I shall shorten the road from this point to Floyd's Peak on my return, by carrying it through Tucker's Pass, which I discovered on the previous journey, by one-third of the distance.

April 24.—We left our camp before daybreak, and, descending the rocky hill, struck the level valley leading to White Rock spring and Truxton's springs. To my infinite satisfaction, we discovered two springs this morning, neither of which are a half mile from the road, and both having abundant water. This discovery renders the road from Albuquerque without a single (jornada.) There is now no place on it, when the new road is made, which will make it necessary to travel over five and twenty miles without water. I regard the discoveries of this morning as fixing beyond doubt the fact that this is the best emigrant road known from the eastern States to the Pacific ocean. The first spring I have called Delaware spring, because the Delaware found it. It is in a cañon to the left of the road, about a third of a mile distant, and about two miles and a half onward after descending the rocky hill into the valley. The second I have called Gardiner's spring, after the man who showed it to me. This, also, is on the left of the road, and about a mile and a half further on than the Delaware spring. They are both of the purest water and refreshingly cold. In addition to this, we have discovered a short and easy road to Hemphill springs, which is quite a stream; by the newly discovered road one turns off after passing the springs just mentioned, and, going due west two miles and a half, reaches the water without encountering any difficulty. Thus a cluster of springs of excellent water are found at the very point which we have always considered the least well watered, and on that account the most objectionable on the whole road. Indians seem numerous about here, and we are keeping a bright look-out for them. To-day their signal fires are telegraphing our arrival from every hill-top. It was here we killed two on our homeward journey winter before last.

April 25.—Leaving White Rock spring, which is in Eagle's Pass, we came to Truxton's spring, discovered in our previous expedition, in a mile and a half. Here we breakfasted, and grazed our mules until noon, when we came on nine miles further and encamped. On our way down, just as one comes out of the pass and turns to the westward, I saw a green spot on the mountain opposite, and Mr. Bishop informed me that it was, he supposed, the spring which one of his hunters had found and spoken to him of a few days previous. I sent over some men to examine, who reported on their return that it was an abundant spring of the largest kind. It is about a mile, or perhaps a little more, from the road, and not over six or seven from Truxton spring. The bearing from the mouth of the pass is nearly west to the spring, to which a well marked Indian trail leads. We are beginning to believe that this part of the road will prove the best instead of the worst.

April 26.—Leaving our last night's camp, I determined to make a cut-off in the road to Vias spring, which is on the mountain side, as our provisions are getting low. I made only a passable road, and reached the spring at evening. All day was passed in hard work

upon the road. We found the spring improved by the working out of the rocks, which we did last year. At Truxton's spring the Indians succeeded in stealing a mule from us.

April 27.—Spent the day in working out the rocks in the spring, and cutting the road close to it. The old road did not come within from three to five miles of it. The new one, which was hurriedly made, for the reasons given in yesterday's remarks, approaches it within two or three hundred yards. In the evening we got up our teams and drove some eight or ten miles.

April 28.—Leaving our last night's camp we came twelve miles to Saavedras spring, near the mouth of the Boy Pass; here we found the water abundant, but grass scarce. About three miles before we got here, and about a mile after entering the Bog Pass, I went off with Mr. Bishop to the right, some two miles, to look at some springs which he had discovered when coming to meet me. They are fine springs, and well filled with water; here any amount of stock could be watered. I only visited two of the three discovered by him, but he informed me there was another a mile or two beyond in the same line; the road to these springs from our road is not difficult, and I drove my small instrument wagon to it. I am contemplating a change in the location of the road, so as to pass these fine waters, which are important discoveries. We are now within twenty miles of the foot of the Colorado mountains, which are plainly visible as one comes down the cañon to this spring, and consequently only forty miles from the river. This morning the Indians stole one of our mules and shot another, so that it died in half an hour, which belonged to the two mail men who are travelling under my escort, the mail being carried on our camels. When I met Mr. Bishop he had brought it on the camels from California, and at the request of the road agent I am now taking it back by the same conveyance, having informed me that he had no means at his disposal to carry it back. The camels have done good service on the thirty-fifth parallel road. We picked up an arrow which had been evidently shot at Mr. Carrington, who was on horse guard at the time, but struck a rock before reaching its intended victim. It will be curious if I do not find some way of circumventing these fellows before morning. The mule was stolen and the arrow shot in broad daylight and about noon.

April 29.—We arrived early this evening at the springs at the Colorado mountain, where we found the water very plentiful. We played off a very good joke on the Indians last evening, which brought up our accounts quite square with them; about sun down after they had killed the mule and stolen the one mentioned yesterday, I caused the mules to be hitched up, and camp made ready in as much apparent confusion as possible, knowing the devils were watching every movement we made, it was so managed that we got off at night, so that they could not see the men we left behind concealed in the rocks, after going a few miles as if we had been frightened off, and were moving to seek more open ground, we encamped and built our fires; all this must have amused Mr. Indian vastly, and doubtless he chuckled hugely how they had frightened us; the men left lay in the rocks until daylight, when, just as we had expected, our red brothers

came down to see the mule they had killed, and what damage beside they had done us, when our party fell upon them and killed four, returning to camp before it was ready to start in the morning, bringing bows, arrows, and scalps as vouchers; it was a good practical joke—a merrie jester of ye white man and ye Indian.

April 30.—Went to the summit of the mountain, and to the base on the other side, to look at the road. We saw the river very plainly, but could see nothing of the troops, and so shall make our preparations to go down and give the Mohaves a turn in the morning, for which the men are busy preparing their arms. To-day we have discovered a cluster of five springs lying to the left of the road from this camp, which is at the first springs before reaching the mountains. They are reached by a rocky trail, and have a great deal more grass than this one, or the one a mile ahead. The cañon in which they are is plainly visible as one comes to this spring, and it is only a quarter to half a mile from here. In addition to these springs, we found two others: one a half mile or so up the creek in which this spring is situated, and another near the foot of the mountain. Camp has not been moved to-day; and when I say we crossed the mountain, it must be understood that we only went over exploring and to look out. Preparing for a descent on the Mohaves; all hands getting ready their arms. I shall take with me thirty-five men and three days' provisions on three camels. The men will go on foot, so that we shall not be encumbered with mules to guard while we are fighting; as for the camels, they will pack our provisions and require no guarding, as they will feed well tied up to a bush.

May 1.—Left camp early with thirty-five men, all on foot, and in fighting trim, with nothing to carry but their rifles, knives, and revolvers, the camels, packed with provisions, following close behind us. We marched the twenty-five miles in six hours. On our arrival at the river we saw some Indians, and the men, as soon as they had drunk, started out to get a shot. Whilst they were hunting them through the thick undergrowth which fills the bottom, and about three hours after we arrived, we were surprised at seeing three or four white men coming up the trail. These informed us that the troops were encamped in a bend of the river a few miles below, and that Colonel Hoffman had made a treaty with the Indians; so that we immediately called in our men, much to their disappointment and intense disgust. Here I heard that our caches of provisions had been raised by the soldiers, so that I would be obliged to go into the settlements for more. Major Armistead is at present in command of the troops.

May 2.—Sent back to the mountains for the remainder of my party, which will come on here and await my return with the provisions.

May 3.—Preparing for a start. The remainder of our party from the other side of the mountains came in.

May 4.—Moved down to Major Armistead's camp, and in the evening swam our mules over the river, and started for the settlements for provisions.

June 26.—Arrived at the river and encamped, having been absent

since the fourth of May, busy in procuring and packing out provisions for my camp.

June 27.—Commenced crossing our packs and provisions ; the river very high, and nearly a quarter of a mile in width, with a rapid current.

June 28.—Completed our crossing. I found our camp in good order and health. Major Armistead had been kind enough to keep them supplied with provisions until my return, which places us all under many obligations to him. The Delaware and Little Axe have taken in my absence thirty-two beavers and killed two black-tailed deers.

June 29.—Left the river and crossed to the opposite side of the mountains with our wagons. Two months' work has made a vast change on the road over the mountain ; an ordinary six-mule team may now easily go through John Howell's Pass, hauling thirty-five hundred. Springs have been found also between the river and the mountain, which makes it an easy day's journey. We encamped at our old ground, under Frank Murray's Peak.

June 30.—At the springs on the eastern side of the mountain, making our preparations for a start.

July 1.—Spent in refitting wagons, shoeing mules, &c.

July 2.—Got under headway this evening, and reached Saavedras spring at daylight.

July 3.—Saavedras spring contained sufficient water, but being anxious to alter the line of the road to Bishop's spring, we only watered our animals and turned them loose for a while, and then came on. About a mile from Saavedras spring we left our old road in the first cañon, which comes in on the left hand as one travels towards the east. Following this up three miles over an easy road, we came to Bishop's springs. These two fine waters are about four or five hundred yards apart, and are inexhaustible. This evening a heavy fall of rain, accompanied with much thunder and lightning ; it lasted from six until ten o'clock at night, raining in torrents continuously. At Saavedras spring we found that the Indians had burned the dead bodies of their friends slain by our party as we went in ; their bones still remained in pieces on the ground. Mr. Bishop and myself, out exploring this evening, found a running stream of pure and excellent water near camp, which I called Armistead's creek, after Major Armistead, of the United States army.

July 4.—Finished working in the vicinity of Bishop's springs, and moved over to the creek discovered yesterday. It is thickly lined with willow, cane, and grapevines, and a fine little growth of hackberry. A heavy shower of rain ; the weather cool, but pleasant.

July 5.—Leaving Armistead's creek, we came by a beautiful pass, over a small ridge of inconsiderable height, to the great valley, through which our road passes, to Vias spring, which is now frequently called Indian spring. As we crossed the divide to get into this valley, Harry Edward's mountain lay directly in front of us, and its lofty summit, covered with great pines, induced me to send a party off, under Mr. Carrington, to examine it. He did so, and reports a fine running water and beautiful country around the part examined. I have called the spring after its discoverer, Carrington's spring. We

are encamped for the night in the valley, at the Dry creek, which runs through its centre, and found here, as all over the plain, green and abundant grass. A fine shower of rain. .

July 6.—Reached Vias spring early in the forenoon, and found plenty of water. We have now with us nearly two hundred animals, and yet we did not exhaust the water or diminish it so much but that it speedily refilled the basin of the spring. In the evening we travelled some eight miles, and encamped near Gabriel's springs. It rained on us most of the evening.

July 7.—We passed Gabriel's springs, leaving them a half mile to our right; it affords quite as much water as Vias or Indian spring, and has hackberry and locust shading it, making it one of the prettiest camps on the road. I here changed the location of the road, and instead of crossing the Dry creek, at the old point, I kept on the side on which the spring lies, and exchanged a hilly road for a fine, smooth one, and crossed the Dry creek, opposite Engle's Pass, in which Truxton's and White Rock springs are found. Gabriel's spring lies up the ravine, which comes into the Dry creek just where the road makes the bend, in following up Dry creek. We nooned at Truxton's spring, which is inexhaustible, and then following up through Engle's Pass, by White Rock spring, (running water,) encamped at the entrance of the pass, at some holes of water, which, however, are not permanent, though full at this time. It rained hard on us all night.

July 8.—Getting out of our wet blankets, we came on to Gardner's spring with the train. It has rained all day long. I have spent the day exploring a road for wagons into Hemphill's springs, which are a group of springs, forming a small creek. We have been perfectly successful in finding both an outlet and an inlet to them, by which the heaviest loaded wagons may pass with perfect ease. I had with me two four-mule wagons, with their usual loads, and passed in and out without stopping for an instant to open the road, and without either a steep ascent or descent. The Delaware killed a deer.

July 9.—Spent the day in looking for a way to avoid a rocky hill over which the old road lay. Explored a pleasant valley, by which we not only regain the old road and avoid the hill, but save three or four miles in distance. Fresh Indian signs to-day. The Delaware killed a black-tailed deer. Sent the mules over the road explored yesterday, to Hemphill's springs, three miles off, there being an insufficiency of water for so many animals. Little Axe killed a black-tailed deer. Our men ran off some Indians, and returned with many trophies, but no *hair*. Amongst the affairs left by the Indians was a large piece of red chalk, (keel,) of which they appeared to possess plenty, and an awl, made of a part of a pair of scissors, most probably taken from the emigrants at the time of their massacre on the river.

July 10.—Going out through the pass discovered yesterday, we came to camp about ten o'clock at night, in the great valley which is entered from the east by Dornin's Pass.

July 11.—Leaving the train to pursue the road, I turned off and came through Tucker's Pass into the valley, at the head of which is Floyd's Peak. We passed over a beautiful country covered with cedar in large patches, sometimes in extent, and intersected in the valley

with numerous ravines, in every one of which we found water, but, I presume, it was only that left by the late rains, though in places it had collected in pools in very considerable quantities. The grass everywhere excellent. The Delaware killed an antelope.

July 12.—We moved up to Hawley's cañon and found plenty of water; this cañon lies about four miles westward of Floyd's Peak. The Delaware killed an antelope.

July 13.—Yesterday some of the Mexican herders came in to say they had discovered a large tank of water, with water running into it. I examined it to-day, and found it six feet deep and twenty in diameter, with a small thread of water running into it; the walls on all sides but one were perpendicular, and about twenty-five feet in height; on the remaining side was an opening into the cañon, affording easy access for animals to the water. I have called the pool Kerlin's well. I should say any amount of cattle might water at it, and for a recruiting point for emigrants it is a most desirable place, as the grass is very abundant and excellent. I regard this as so important that I have here altered the location of the road so as to pass just by it. Going on a mile or so further, we found another valley containing water in holes all the way down it, but I take it to be rain water, while that at Kerlin's well I regard as permanent. I found growing in the valley of the well some fine mint. I had brought but one bottle of brandy with us, intending to keep it for fear of a rattlesnake bite, but the temptation was too strong; so, gathering a handful or two of the mint, we returned to camp and manufactured the first mint julep ever drank at Floyd's Peak. In the evening we moved on, passing Alexander's cañon, and encamped at a small spring hidden in the rocks, and which I called after my negro servant, who discovered it, Ab's spring; here we found quite sufficient water for the use of the animals. Little Axe killed an antelope.

July 14.—We started late and travelled to King's creek, in which we found no water, but plenty of grass all over the country; this region abounds in cedar. The Delaware killed an antelope.

July 15.—Leaving King's creek at two in the morning, we came to Law's spring, named after one of my men, in which we found plenty of water; it lies to the left of the road going east, about two hundred yards in a pine grove. We nooned here and came on to encamp at Bear springs—these are a cluster of some seven or eight springs breaking out in a noble pine forest with luxuriant grass all through it. The Delaware killed an antelope, and Little Axe a bear.

July 16.—Leaving Bear springs we passed Breckenridge's springs—the largest of these springs is to the left of the road some four hundred yards as one travels to the eastward; in the evening we encamped at Leroux's springs. The Delaware killed an antelope, and Little Axe a black-tailed deer.

July 17.—Spent the day at Leroux's springs.

July 18.—Leaving Leroux's springs, we encamped between Cosnino caves and Walnut creek. As I have before stated, the great pool on which travellers and emigrants must rely for water lies below the caves, and crossing of the creek about a quarter of a mile. I measured this pool yesterday—it was sixteen and a half feet deep, seventy feet long, and about forty feet in width; in it I saw many fish, some of

them six inches in length, and resembling trout, both in their shyness and rising to the surface to snap flies and insects falling into the water. A few days since I sent Mr. Carrington with a party to examine the western slope of San Francisco mountain. They returned yesterday, having found a fine country abounding in game, of which they killed a wild turkey and a brown bear. The Delaware killed an antelope to day; a fine rain has fallen this day.

July 19.—Left our camp near Walnut creek, stopping at it only to breakfast; arrived at the Colorado Chiquito and encamped on the cut-off.

July 20.—We raised camp early, and travelling ten miles, encamped for breakfast at the spring discovered under the bluff of the Mesa on our outward bound journey, and which I have called after a gentleman of my command named Thompson. The road made over the Mesa, as we went westward, stands perfectly undisturbed by the heavy rains, which have fallen on it, and is even the better for it.

July 21.—We crossed the Little Colorado without difficulty, and travelled up it until we encamped near the Cotton-wood fork; grass excellent; Delaware killed an antelope.

July 22.—We travelled on the Little Colorado until our road left it. The Puerco we found a running stream, as also Dry creek, too; both were full to the banks. We encamped for the night on the eastern slope of the hills descending to the creek. Little Axe killed an antelope.

July 23.—We passed Xara and encamped near Jacob's well, in the cedars.

July 24.—Passing Jacob's well, we encamped near Zuñi. The Delaware killed an antelope.

July 25.—Leaving Zuñi, we encamped for breakfast, three or four miles to the eastward of it, just where the creek enters a cañon. Before coming to this camp is a bad hill up the Mesa, over which the old road leads. Just before arriving at it, travellers going west should turn to the left and take our road, which avoids it entirely without loss of distance, and is excellent. The only impediment we found was an arroyo, which we filled up with stone, making the road good around the bluff of the Mesa, instead of going over it and avoiding a steep pull. We encamped for the night between the Ojo Pescado and Inscription rock. The Delaware killed an antelope.

July 26.—Passing Inscription rock where we breakfasted, at the spring, in the valley which drains its waters into the Pacific, we crossed the Grande Divide and encamped for the night at the Agua Fria, where the water drains to the Atlantic.

July 27.—We encamped on the Gallo river, near our old camp of two years ago. It is pleasant to contrast the rapidity and ease with which we now pass over the fine road from here to the Colorado river, with the feelings of doubt and uncertainty which were our constant companions on our exploration and first survey of that then unknown region. *The Delaware and Little Axe* killed two antelopes.

July 28.—Encamped near the Indian town of Laguna, near the Puerco.

July 29.—Reached Albuquerque.

Table of game killed by the hunters, Delaware Dick and Little Axe, on the wagon road, 1858 and 1859.

Date.	Hunters.	Buffalo.	Deer.	Antelope.	Beaver.	Raccoon.	Bear.	Wild turkey.	Panther.	Big Horn mountain sheep.	Number of head.
1858.											
November-----	Dick, the Delaware-----	11	13	-----	-----	2	1	8	-----	-----	35
December-----	Dick and Little Axe-----	24	7	-----	-----	1	-----	16	1	-----	49
1859.											
February 10 and 11-----	Dick and Little Axe-----	-----	2	-----	-----	-----	-----	5	-----	-----	7
March 3, 12, 13-----	do do-----	-----	2	-----	4	-----	-----	4	-----	-----	10
April-----	do do-----	-----	1	11	12	-----	-----	-----	-----	1	25
May to July-----	do do-----	-----	2	-----	32	-----	-----	-----	-----	-----	34
July-----	do do-----	-----	4	10	-----	-----	1	-----	-----	-----	15
		35	31	21	48	3	2	33	1	1	175

The two hunters, Dick, the Delaware, and Little Axe, a Shawnee, were employed in that capacity, and took the above number of valuable head (beside smaller game) in about one hundred days' hunting; on many parts of the road game was very abundant. A large amount of the game taken by others of the party is not mentioned in this report.

SIR: In compliance with your request, I have the honor to present to you herewith a brief sketch of my journey across the plains from Albuquerque to North Fork Town, in the month of June last, over the Pacific wagon road of the 35th parallel.

The mail party, with which I travelled, left Albuquerque on the morning of the 15th of June, and reached Hatch's ranch the next evening, having accomplished, with a single team of mules, 110 miles in 36 hours.

The road to the ranch is excellent throughout; the surface for the most part gently undulating, compact and firm, free from stones, and not readily washing in gullies. Water occurs at frequent intervals, except upon the high prairies between the Cañon Carnael and the Cañon Blanco, where the lagunas, which are sometimes dry, furnish the only supply. The artesian well, or Galisteo's creek, if successful, will prove to be of great importance, as it is situated about midway between the cañons. The cut-off, located by yourself between the Chupainas and the Cañon Blanco, afforded us an excellent road, besides saving the great detour in passing by Anton Chico.

After a delay of twenty-four hours at Hatch's ranch, the mail party again set out. The outfit comprised a wagon, heavily loaded, and seven mules, with which we were to make, without relief, a journey of nearly 850 miles.

After crossing the divide between the Gallinas and the waters of the Canadian, the ascent to which was effected by a very moderate grade, we had a fine rolling prairie country to traverse, nearly to the Laguna Colorado, 54 miles. A few spurs from the Mesas, south of the road, break in upon the monotony of the undulating prairie a few miles west of the laguna. We found plenty of water within easy reach, the longest drive being 14 miles. We were now in the Plaza Larga, through which the road is unsurpassed in its excellence. The valley of Tucumcari creek presented a fine view of beautiful country. Mottes of cotton-wood in full foliage could be seen at short intervals along its banks, of such size, as to satisfy me that the estimate I had made of the quantity of timber in this section of the country, last winter, was much too small. The grass was very luxuriant. When I left the Rio Grande, except upon the banks of the streams and the tops of the mountains, there was not a blade of new grass to be seen. Here it was most abundant.

The distance from the laguna to Rocky Dell creek, at the foot of the Llano Estacado, 84 miles, we made in 36 hours. On the 19th we travelled 51 miles. The longest drive taken was 13 miles. Many of the arroyos from the Llano which cross this portion of the road contain a good supply of water in pools the greater part of the year. We found the grass excellent. The rapidity of our progress would indicate the condition of the road.

The passage of the Llano Estacado was soon accomplished. It is impossible to imagine a more perfect natural road than that afforded by the smooth, level surface of this remarkable plain. When we were fairly on the Llano, as far as the eye could reach there was nothing to be seen but a level waste of land, covered with the short buffalo grass, now beautifully green, and unbroken by drain or arroyo,

bare of the faintest sign of vegetation, save the grass. It is 18 miles from Rocky Dell to the Agua Piedra, the longest drive without water, from Hatch's ranch to the States.

Leaving the Llano we crossed a somewhat broken country, which is cut by numerous streams to the Canadian valley. Except at Shady creek, where some sand is encountered for a mile or two, the road was good and the travelling easy. About six miles east of Shady creek there is a fine spring within a few yards of the road. The grass was even better than further west. It will never be necessary to drive more than ten or twelve miles without an abundant supply of water, either running or in pools, and I have little doubt that careful examination would lead to the discovery of numerous springs.

Along the valley of the Canadian we found the most luxuriant vegetation. The rich, rank grass, the full-leaved cotton-wood, hackberry, and wild plum trees, and the abundant grapevines, indicated a vigorous soil and plenty of moisture. Just as we reached the Canadian valley we were caught in one of the heaviest rains I ever saw. It beat through the double canvas of the wagon in ten minutes, and continued to pour down in torrents for an hour and a half. Despite this, we found the road solid and good the next morning. Valley river was fully twelve feet deep when we reached it, but falling at the rate of twelve inches an hour. A little search showed us that we could cross it upon the bar at its mouth, which was done after a few hours' delay. The extremely porous nature of the wide bed of the Canadian renders the absorption of the waters brought to it by its tributaries so rapid that they rarely reach the main stream. Though we crossed Valley river several hundred yards from its junction with the Canadian, it was scarcely two feet deep, while two hundred yards higher up it was fully ten. Except in time of freshets, this stream has no visible connexion with the Canadian.

We travelled rapidly along the valley of the river till we left it to avoid the road near the Antelope Hills. The road was always good—so good, in fact, that with animals that had travelled nearly four hundred miles we were making an average of forty-five miles a day. Water was always plentiful and the grass most excellent.

I feel satisfied that the quantity of timber along the valley has always been underestimated. Every little tributary of the river is lined with cotton-wood and hackberry, and large groves occur frequently on both sides the main stream. The fertility of the valley cannot be questioned, and its great extent will sometime render it the home of a large population. Better pasturage is not to be found anywhere than is afforded by the high lands of either side; the mild climate of this region and the pure bracing air should offer further inducements to settlers.

Near the Antelope Hills we met a large drove of cattle *en route* to New Mexico from the Indian territory. They bear witness to the capabilities of the road for the purposes of drovers.

Leaving the Antelope Hills, we again descended to the valley of the Canadian, and followed it over a good, solid surface for above twenty-five miles, when we began the ascent of the divide between it and the Washita. The road here is tolerably good; after the summit of the

ridge is attained the surface improves, and thence to the Washita valley will compare favorably with that of any portion of the route.

Along the Washita valley the numerous creeks which empty into it offer a slight obstacle to heavily-loaded wagons. Flowing between high banks, and being subject to freshets, no temporary bridges can be of much service, and sometimes these streams are so swollen, as to be for a few hours impassable.

Timber is so plentiful in their immediate neighborhood, and good bridges might be so readily and cheaply constructed, that it would seem expedient to remove the only impediment to trains that exists upon the whole route.

The valley of the Washita differs in a marked manner from that of the Canadian. The bed of the stream is comparatively contracted, and the low grounds have a more decided rise towards the hills. The timber is chiefly black oak, and of large size, sometimes measuring as much as five or six feet in diameter. The soil appears to be excellent. The grass was remarkably fine. The seasons are evidently much more forward here than on the Canadian.

From the Washita valley to the crossing of the Canadian, near Choteau's, we had a fine rolling country to travel over, abounding in grass and well watered. In almost every little arroyo leading from the highlands either to the Canadian, the Washita, or Walnut creek, water can be found. As a large portion of this part of the road passes through the cross timbers, wood is very abundant. The surface is solid and firm, only undulating enough to render travelling easy and rapid.

In passing from the headwaters of Walnut creek to the Canadian the mules trotted the 17 miles without a break.

Crossing the Canadian without difficulty, we drove through a fine country, alternately prairie and woodland, to Jesse Chisholm's house, the first settlement reached by the travellers from the west.

From Chisholm's to North Fork Town the only difficulties encountered consist in the rocky spurs from Boston mountain. For about eight miles west of Aird's trading-post, at Little river, the road was much broken and very rough. A small expenditure of money to remove the sandstone ledges and boulders at this point would be well-applied.

The remainder of the distance to the Canadian, after crossing Little river, was through a fine rolling country with numerous prairies. The soil gave every indication of fertility. Corn was already ripe and remarkably fine in appearance.

Throughout the whole route to this point, at which we left the Pacific wagon road to travel nearly due north to Neosho, we found no trouble or difficulty in obtaining abundant supplies of water, wood, and grass. No detention was occasioned at any place by bad roads, and the animals which brought us so rapidly along for so great a distance without relief came in at Neosho in quite as good condition as that in which they left New Mexico.

No better proof of the excellence of the route could be adduced, I may add, than that two of the party with which I came in who were of long experience on the western plains, and who had crossed from the States to the Rio Grande on nearly every known route, assured me that they

regarded this road as possessing in the highest degree all the requisites of a first class emigrant and stage route, and that it was in all respects vastly superior to any other they had travelled.

I am, sir, very respectfully, your obedient servant,

J. R. CRUMP.

E. F. BEALE, Esq.,
Superintendent, &c., &c.

Table showing the hour of departure from and arrival at camp of the expedition of E. F. Beale, (on return from Colorado river,) from Leroux Spring, San Francisco mountain, to Albuquerque, New Mexico.

Date.	Camp.	Hour of departure.	Hour of arrival.	Hours marching.
July 18	Leroux Spring-----	4. 55 a. m.---	-----	-----
		10. 15 a. m.---	6. 45 m.---	1. 50
		1. 10 p. m.---	11. 50 m.---	1. 35
		5. 50 p. m.---	3. 30 p. m.---	2. 20
		4 a. m.---	8 p. m.---	2. 10
19	Round Top mountain.-----	8 a. m.---	6 a. m.---	2
		3 p. m.---	12 m.---	4
20	Little Colorado river.-----	4 a. m.---	7 p. m.---	4
		10 a. m.---	7. 30 a. m.---	3. 30
21	Crossing Little Colorado.-----	4. 10 a. m.---	1. 20 p. m.---	3. 20
		9. 15 a. m.---	5. 15 a. m.---	1. 05
		3. 55 p. m.---	1. 50 p. m.---	4. 35
22	Little Colorado -----	4. 10 a. m.---	6. 45 p. m.---	2. 50
		12. 05 p. m.---	10. 05 a. m.---	5. 55
23	Zarro.-----	4. 15 a. m.---	5. 10 p. m.---	5. 05
		9. 55 a. m.---	7. 20 a. m.---	3. 05
		3. 25 p. m.---	11. 25 a. m.---	1. 30
24	Jacob's Well -----	4. 15 a. m.---	6. 45 p. m.---	3. 20
		10. 30 a. m.---	7. 20 a. m.---	3. 05
25	Zuñi -----	4 a. m.---	4 p. m.---	5. 30
		10. 25 a. m.---	7. 55 a. m.---	3. 55
26	Fish Spring -----	4. 10 p. m.---	2. 30 p. m.---	4. 05
		3. 55 a. m.---	5. 50 p. m.---	1. 40
27	Cold Water Spring -----	10. 15 a. m.---	7. 15 a. m.---	3. 20
		3. 20 a. m.---	4. 05 p. m.---	5. 50
		8. 10 a. m.---	6. 15 a. m.---	2. 55
28	Ojo del Gallo.-----	5. 15 p. m.---	12. 35 p. m.---	4. 25
		3. 15 a. m.---	6 p. m.---	0. 45
		7. 45 a. m.---	4. 55 a. m.---	1. 40
29	Laguna.-----	2. 10 p. m.---	11. 30 a. m.---	3. 45
		3. 45 a. m.---	4. 30 p. m.---	2. 20
		11 a. m.---	7. 25 a. m.---	3. 40
30	Rio Puerco.-----	4 a. m.---	2. 25 p. m.---	3. 25
		-----	9. 35 a. m.---	5. 35
	Albuquerque -----	-----	-----	-----
	Total -----	-----	-----	108. 05

I have caused this table to be kept in order to exhibit the ease with which loaded wagons may pass over that portion of the road which I consider the least favorable for wheel vehicles. That portion east of Leroux Spring has been thoroughly worked, and is in every part complete as a wagon road. In returning, during the time that this table was kept, our animals were subsisted entirely on grass, and this table, for these reasons, is considered as important, giving evidence as it does, of the favorable character of the road.

E. F. BEALE, Superintendent.

June 29, 1859.—The wagons and pack mules left the military camp at nine a. m. After crossing a sandy plain of an ascendant grade, extending about six miles back from the Colorado river, we entered a narrow gorge which leads to the crossing of the Colorado range of mountains. Four miles from the point of entrance into the gorge we found water, in a hole which had been dug by our working party. Its quality was excellent, but as its flow was small we pushed ahead. Half a mile from this spot water can at times be found in a hole on the right of the road, near a slight growth of cotton-wood. We followed the well-marked road through the pass for about eight miles, when we crossed the mountains by the most excellent road, which had been built by Mr. Bishop's party during our stay at the river. The entire road is of light grade, and rendered firm and durable by a strong outer wall of stone. Every difficulty of ascent and descent has been removed, and wagons of any weight can be drawn over without any extraordinary effort, and without injury to animals.

Near the summit, a well-marked trail on the left leads to a permanent spring of clear, pure water; animals may be taken there with ease. Our working party of eighteen men encamped there for several weeks. The supply is sufficient for a large quantity of stock. After a ride of about two miles we reached the eastern edge of the mountains, where we had left our wagons and working party. A spring of strong flow about ten feet from the road watered our entire herd without difficulty. Weather during the day very warm and clear.

June 30.—We did not move camp to day. The party was engaged in preparing harness, &c., for a start. Soaked the wagon wheels in the spring, and set up the forge to repair iron work. I observed that as soon as we left the bottom of the Colorado, it became much cooler. The weather during the day was remarkably pleasant and clear.

July 1.—The party still at work on the wagons, &c. Mr. Beale decided to make a "cache" of all provisions, equipments, &c., not actually needed until the return of Mr. Bishop's party to the place. A party was sent ahead this afternoon to "Savodras spring," with tools to dig out the spring and prepare it for our arrival. Built an excellent wall around the spring by which our camp is supplied. Latitude of the camp $35^{\circ} 10' 02''$.

July 2.—The party was engaged during the morning in stowing all dispensable property in the cache, and in preparing the train to start this afternoon.

At half-past five the mules were driven up, and in an hour our train was straightened out on the road. The articles deposited in the cache, together with four of our seven wagons, were left in charge of Mr. Renfro. About two hundred yards from the camp, water for stock may always be found at a spring which has been dug out on the right of the cañon, and about two hundred yards below this there is a small spring of the finest water. Following the trail for a mile further, an inexhaustible spring of water can be found in a small cañon to the left of the road. The main road over which we passed has been

cleared of all stone and obstructions, and is of excellent quality. We reached Savedras spring at about three a. m. on the morning of the 3d.

July 3.—At Savedras spring we expected to find Mr. Beale, but as we did not meet him we concluded that scarcity of water had induced him to proceed to the next spring, distant five miles. Mr. Beale, however, was near the spring at the time, and the spring contained sufficient water for 500 head of stock; a second spring had been opened by the advance party which had started on the evening of the 1st. We drove about three miles further, and then followed a trail to the left for two miles, where we joined the camel train. They had encamped near a beautiful spring of water, which afforded a sufficient quantity for any number of stock; about 500 yards further on there is another spring fully equal to the first. Our pack-mules and wagons arrived at about five a. m. This afternoon we dug out the springs near our camp, and they were soon full of clear, cool water. The hole dug around the spring by which our camp is watered is about 12 by 9 feet, and about 5 feet in depth. The upper spring has proved to be superior to the lower.

Messrs. Beale and Bishop made a slight reconnaissance of the country this afternoon, and they report that they discovered a running stream of good water about a mile and a half from our camp.

This evening we had a thunder storm, which lasted for several hours. The heavy rain cooled the air delightfully.

July 4.—The morning was clear and cool. The ground was well moistened, and the grass seems freshened by the evening shower. After breakfast one of the teams was hitched up for the purpose of hauling stone to wall up the sides of the holes which we had dug around the springs. The lower spring is about 12 by 9 feet, and about 5 feet in depth; the upper spring is about 18 by 12 feet, and about 6 feet in depth. While digging out the upper spring a man was kept bailing constantly, in order to allow the work to proceed. The water of these springs is perfectly pure, perfectly clear, and as cold as ice-water. Thus far they are *the* springs of the road; they have been named "Bishop's" springs.

This afternoon, in compliance with the orders of Mr. Beale, we moved camp to the water discovered on the previous day. Leaving our camp we travelled over a rolling country for about a mile, when we descended into a narrow ravine, which soon brought us to camp. The creek, like most in this country, rises and sinks. Its rise is about 400 yards above our camp, and it sinks when about 50 yards distant from us. It runs swiftly over a stony bed, and the ground in the vicinity is hidden by a thick growth of cane and reed. Our mules browsed on the green growth with much relish, and the hill-sides were covered with excellent grass. The water of the creek is perfectly pure, and its supply is inexhaustible; it has been named "Armistead's creek," after Major Armistead, of the United States army. This place is easy of access, and all emigrants who pass over this road will find it advisable to make this a point on their route, as the amount of travel is not increased, and the distance between water is diminished. This would also be a desirable place to halt and recruit stock. Weather cool and pleasant.

July 5.—This morning, after breakfast, a party started from our camp with tools to facilitate the passage of the wagons out of the ravine, and another party started ahead with the camels to Gabriel's spring to dig it out, and then to await the arrival of the train. Shortly after noon a heavy bank of clouds rose in the east, and the entire sky was soon overcast, and the rain poured down in torrents. In the midst of the storm our mules were driven up and harnessed, and our train started. Retracing our trail we passed our point of entrance into the ravine of the preceding day, and continued down the ravine. Opposite the point of entrance the following notice is inscribed on a rock: "Water $\frac{1}{2}$ mile above." We continued on for about a mile further, when we ascended the hill on the left-hand side by an excellent road of light grade; we then descended into a beautiful valley, affording excellent grazing for our mules. We travelled about three miles, and then turned out. After supper we hitched up, and the train proceeded to encamp about five miles distant.

In compliance with Mr. Beale's orders, a party consisting of Mercer, Tucker, Long, and myself, with ten Indians, in charge of Mr. Carrington, started to explore the country in the vicinity of "Harry Edwards's mountain." We travelled about six miles, and then encamped for the night.

July 6.—We started at four a. m. After a march of three miles, we reached a conical-shaped hill, which can be seen from the main road, and then following a cañon directly opposite the hill, we rode to its head, and there we found a beautiful stream of water flowing from the top of the mountain to its foot, running swiftly over a rocky bed. The water of the spring is very slightly brackish; it is sufficient to water any amount of stock. It is easy of access, and the general appearance of the ground admits no doubt of its permanency. The valley is covered with good grass, and, like "Armistead's creek," would be a most desirable spot for persons driving cattle over the road to stop and recruit. The mountains in the vicinity are covered with pines of the largest size, and near the spring we found walnut, box elder, and scrub oak, all indicating richness of soil. After leaving this spring we examined the general appearance of the country, and we found that qualities already mentioned are widely extended. Our preparations not having been made for a long stay, we began our return, intending to meet the train at Gabriel's spring. We travelled until night, allowing our animals two chances to graze. We saw several antelope during the day's march. Rain fell in heavy showers several times during the day.

July 7.—Started this morning at half-past four, and reached Gabriel's spring at six o'clock. There we found the camel train, which had started in advance of the rest of the party. Shortly after our arrival Messrs. Beale and Bishop rode into camp; they had left the train encamped at Indian or Via spring, about nine miles distant. That spring was filled with water in sufficient quantity to water any amount of stock.

"Gabriel's spring," which was dug out and walled, affords a good supply of pure cold water, and, as it is about midway between "Truxton spring" and "Via spring," the distance between waters is not

over ten miles. After breakfast our party was ordered to accompany the camel train to Truxton spring. We reached there after a short ride through Engle's cañon, in which the spring is situated. Here we found the water falling in a rapid stream from a slight elevation into a large pool, which at all times contains an inexhaustible supply. Our wagons and pack mules arrived in about three hours, and we turned out our animals on the excellent grass. At five p. m. Messrs. Tucker, Laws, Carrington, and I were sent ahead to examine some water holes at the mouth of the cañon, about five miles distant. Passing the "White Rock spring," where we found water of the best quality and in the greatest abundance, we soon reached our destination, and found water in sufficient quantity for our stock. Mr. Tucker returned to camp and conducted the train to the spot. This water is not permanent, although it may frequently be found there. It is muddy, but of good taste. Incessant heavy showers of rain fell during the day. Towards night the rain poured down in torrents, accompanied by loud thunder and vivid flashes of lightning.

July 8.—This morning we started from camp about seven a. m., rain falling lightly; we travelled about six miles and then encamped and turned our mules out to graze; after a stay of about an hour we started again. Proceeding over a good road to the mouth of a narrow rock-bound pass we halted and watered the animals from the water-wagon. Here Mr. Beale ordered the train, with the exception of two light wagons, to proceed to Gardner's spring and then to camp, while he with Mr. Bishop and others went over to "Hemphill's spring." The train started and we struck off through a cañon to the left. After a ride of about three or four miles, over a somewhat hilly country, we descended into a ravine and followed it to its mouth, when we struck the stream of the spring. There we found a swift flowing stream of the purest water. The ground in the vicinity was hidden by a dense growth of rushes, and excellent grass was found in abundance. I cannot praise too much this beautiful spot; after cooking a meal we caught up our animals and started. In our exit, however, we chose a route different from that by which we had entered; we followed a cañon to the left; through this cañon, which is about a mile and a half in length, we found an excellent road of a light ascendant grade. Passing out of this we travelled about a mile and a half over a level country; struck the main road, which we followed for a short distance, and then turned off into a cañon to the right and reached our camp at "Garteus spring." The weather during the day was cloudy with frequent heavy showers of rain.

July 9.—This morning a party started ahead to work on the road, but finding a "pass" which obviated the difficulty, they soon returned. The forge was set up again to repair iron work. In the afternoon the sheep-herders took the sheep-herd around to "Delaware spring." This spring is in a cañon distant from the present camp about 300 yards. It is a permanent spring and contains a good supply of excellent water. "Gardner's spring," which waters our camp, is at the head of the cañon, and has a fine flow of clear, pure water. The weather during the day was quite cool, with showers of rain. The

nights and mornings are so cool that two pairs of blankets are very acceptable.

July 10.—The morning broke cloudy and cool ; rain fell for about half an hour ; the sun then came out, and the remainder of the day was bright and beautiful. At one p. m. the mules were driven back from "Hemphill's spring," whither they had been taken on the previous day, and after dinner we hitched up. The water-wagon was sent around to "Delaware spring," but the mules of the stage company, which passed me to-day, together with our sheep-herd, had nearly exhausted the spring. The train had just started when Mr. Beale ordered Messrs. Tucker, Carrington, and me, to go to a point of a mountain to the right of the road and to examine hastily the appearance of the country and the probabilities of finding water. We did so; and although we found no water, we found several well-marked trails which undoubtedly lead to water, and the most beautiful valley that I have ever seen. The grass was rich and luxuriant. The hills on either side were covered with large cedar trees, and the soil throughout the valley was rich and fertile. After turning around the base of the mountain to the left, we rode for some distance up the valley with a course running parallel to our road ; we then struck across the hills, met the wagon trail, and found the train encamped about ten miles from the last camp. While on our road we saw a herd of antelope, but did not get a shot at them.

July 11.—The air this morning early was excessively chilly ; the train started ahead at about five a. m. over the solid, level road which leads through the valley, and Messrs. Beale, Bishop, Kerlin, and I started across the valley, with the intention of going through "Tucker's Pass" and joining the train at "Floyd's Peak." We struck an Indian trail at a short distance from camp, and followed it to the mountains on the northern side of the valley, about eight miles distant from the main road, and then entering the pass we found an excellent road for trains of any description. On the right of the pass our attention was called to a slab of stone bearing inscriptions of lizzards and of other reptiles ; the stone upon which these figures are carved is of fine hard grit, and would be far superior to our brown stone for building purposes. The country is covered with the finest quality of grass, and was pronounced by persons who have spent much time in our interior country to be the finest grazing tract that they have ever seen. Among the cedar trees with which the hills are covered we found a cedar whose trunk was covered with the bark of the white oak ; these trees, which we found in great numbers, are generally, when full grown, between two and three feet in diameter, and the branches, which are similar to those of the common cedar, run out from the main body at a distance of about twenty feet from the ground. After eating our breakfast and allowing our mules to graze for an hour we started again, and ascending a small hill we saw "Floyd's Peak" about twelve miles distant. We continued our course along the ridge of the hills, still following the Indian trail, until Mr. Beale descried a narrow rocky cañon to our left, and supposing that we might find water there the party headed for the spot. Our expectations were indeed realized ; we found at least half a dozen holes, which were filled with water of pure quality

and in large quantities. After watering our animals we turned them out to graze, and we turned in for a nap beneath the cool shade of a cedar; we spent about three hours there and then started. Following the course of the ravine, pool after pool of water was discovered, and the last which we saw was about twenty feet in breadth and between three and four feet in depth; Mr. Beale gave it as his opinion that water can be found in these places at any time of the year. Leaving the cañon we struck for camp, whither we were guided by fires which we saw to our right; we found there the camel train and our loose stock; they had camped near a deep rocky ravine, with water and wood in abundance; from the water in this place we had filled our water-wagon when we passed this place in the month of April, on our way to the Colorado. This is an evidence that water can be found here between the months of April and July, and I have no hesitation in pronouncing it permanent. The whole of the country over which we passed on our day's march was most favorable to a wagon road. It is thought that "Tucker's Pass" cuts off twelve miles from the main road; but if a party would start from "Garteus spring" and make a night march of twenty miles they would reach water on the next day at noon; such a course could involve no danger. The road is equal to any race-course, and it would be advisable for a wagon train to follow the main road; the wagons reached camp about seven p. m.; they had camped on an arroyo about two miles distant, where they had found water; we saw five deer while on the road. The weather during the day was clear and cool, with a delightful breeze.

July 12.—This morning we moved camp to a ravine about five miles distant; the water is in a rocky bed, and we watered our herd at this place while on our trip across; several holes in the rocks were filled with clear, pure water. The morning we started over to a place where water had been found to dig out and wall the spring; to our surprise we found no water, although the earth about two feet below the surface was extremely moist; it would be advisable to visit this place for the chances of finding water and good; we returned to camp and we were greeted by the pleasing intelligence that one of our party had discovered a running stream of pure water within three-quarters of a mile of our last camp; further examinations will be made to-morrow. Weather during the day cool and pleasant.

July 13.—This morning I started over to examine our newly discovered watering place. I found it in a deep rocky ravine, about seven hundred yards from our last camp. The main pool was six feet in depth, and contained an inexhaustible supply of clear, pure water. Messrs. Beale and Bishop visited the spot, and they pronounced it a permanent spring. This place has been named "Kerlin's Wells."

The party was engaged during the afternoon in preparing matters for an evening start. Mr. Beale decided to leave our three heavy wagons, our spare mules, and all dispensable property, at this place. The wagons were left in charge of a portion of Mr. Bishop's party. We started at five p. m., taking with us the water-wagon and two light wagons, with nine pack-mules. We travelled about ten miles and then encamped near a water hole, which contained an abundance of water for the party and the stock.

During the night we had frequent heavy showers of rain. Our hunter, Dick, brought in a fine antelope this morning.

July 14.—This morning early we set to work to repair an accident which had occurred to one of our wagons. A party, also, was started out to search for a pool of water which had been seen by one of our party while on the trip across. Our search, however, was unsuccessful. When we returned to camp we found that the wagons had started. We saddled up and went around to the spring, but could only find sufficient water for our own use, as over one hundred buckets had been taken out already. Some of our party started for "King's creek," by the way of "Bishop's Cut-off." By this route nearly fifteen miles may be saved between "Ab's spring" and "King's creek."

The road is passable for loose animals, but not for wagons. I took the main road, and joined the train about ten miles from the last camp. They had turned out the animals, but were then catching up. After watering the animals from the water-wagon we started, and reached "King's creek" at about 7 p. m. Here we found no water, and the animals were turned out to graze, and orders given to call camp at midnight. The grass along the road was excellent. Cedar forests extended nearly the whole distance, and the road was hard and level. We had a slight sprinkling of rain about sunset. The day was cloudy, with a pleasant breeze. We saw several antelopes during our day's ride.

July 15.—Camp was called at midnight, and at 1 a. m. we were on the road. We started for "Breckenridge spring," but we found an abundance of water at "Law's spring," where we arrived at about 5.30 a. m., distant from the last camp seventeen and a half miles. This spring is in a rocky ravine, about 300 yards from the road. The water, which is contained in two separate basins of rock, is situated at the western end of the ravine. The quality of the water is excellent, and it is in sufficient quantity to water a large amount of stock. The testimony of all who have visited this spot shows that the water is permanent. We allowed our mules to graze on the abundant green grass until 4 p. m., when we hitched up and started. At this spring we left our water-wagon. Our road, which passed through a beautiful grazing country, thickly timbered with pines of the largest size, brought us, after a ride of about seven miles, into the valley of Bear spring. I have never seen a more beautiful spot. The valley was about a hundred yards in width. Green grass in the greatest abundance covered the ground, and streams of the purest water ran in every direction. Pine timber of the largest size grew in dense forests, and extended for miles over the surrounding country. There are four springs which are permanent, and yield an inexhaustible supply of pure cool water. The first spring, which is about 40 yards above the spot where the road leaves the valley, was full of water. A stream poured from it which was about 40 yards in length. At a short distance below the spring a hole has been dug, which was full of water. The second spring, which is about 25 feet by 20 feet, affords a stream of 300 yards in length, in which three deep

holes have been dug. The third and fourth one full of water. The soil of the valley is dark and of good quality.

The weather during the day was pleasant. Rain fell several times during the night. Our hunter, Dick, to-day brought in an antelope, and our hunter, Little Axe, a bear.

July 16.—This morning we were ordered by Mr. Beale to make the circuit of San Francisco Peak. Our party consisted of Messrs. Carrington, Long, Thompson, and myself. We left camp just after the train started for Leroux spring, distant about eighteen miles; we struck off toward the western side of the mountain; when within about a mile of the foot of the mountain we struck a narrow valley, which we followed for several miles. The country through which we passed was similar to that already described. We encamped at 12 o'clock to dine. While at dinner our attention was called to something moving in the woods. It was found to be a bear, and eatables were instantly dropped, and we ran out, rifles in hand; one shot was fired, but our game escaped. After dinner we saddled our mules and started ahead. Some parts of the valley through which we passed were truly beautiful. We saw spruce firs over a hundred feet in height. Large groves of aspens were numerous. Some oak also was seen. While passing through a copse, we saw our bear and a flock of turkeys; chase was instantly given; one fine gobbler was shot by Mr. Carrington, but our bear disappeared for the second time. Mr. Carrington and myself then started off together, and while passing under a tree we accidentally espied our friend Bruin cosily seated in the branches of a spruce tree. A shot brought him to the ground, and a second settled him. We cut off his claws and left. During our day's ride we found no water, but the deep verdure of the grass, and the growth of weeds in the hollows and ravines showed that an abundance of water could be obtained by digging. We camped for the night near a hole which had been dug, most probably, by Sitgreave's party, and which contained some rain-water. We allowed our animals to roam around until about 9 o'clock, when we picketed them, and turned in for the night. Several times during the day the rain fell in heavy showers. The weather was pleasant, and the evening quite cool.

July 17.—This morning, at 4 a. m., we started from our camp. In the vicinity of the water hole near which we had encamped I observed a dense growth of fern and of different kinds of flowers. We continued our course around the mountain, over a level country, until we reached the northern side. We then struck a trail on the side of a hill, and followed it for several miles; our height above the general level was such at times that we could view the country for several miles in every direction. The hills for a great distance were covered with dense forests of pine, and the valleys were covered with luxuriant grass. We at last struck a gentle slope which we knew must descend into the valley of "Leroux spring." Our surmise was correct, for we soon met our wagon trail, and followed it into our camp, and found the party preparing for an early start on the following morning.

"Leroux spring," which rises in San Francisco mountain, flows into a valley on its western side; its stream is conducted by a trench down to one of the stations of the mail company; in the trench, which

is about 500 yards in length, several deep holes have been dug and walled around ; the water of the spring is as clear as crystal, pure and cold ; throughout the year it yields an unfailing supply ; the weather during the day was cloudy, with occasional showers.

July 18.—The morning was rainy and quite cool. At 7 a. m. our train, consisting of three light wagons, left "Leroux spring." We left at the spring two heavy wagons and an ambulance, in charge of Mr. Bishop, whose party we left at this place ; they are to work upon some portions of the road between Leroux spring and the Colorado river. Passing out of the valley, we travelled about two miles through a belt of timber. The surface of the country in this vicinity is somewhat rocky, and our trail was marked on the trees by three "blazes." Leaving the timber we entered the valley of "San Francisco spring ;" in this valley the grass was luxuriant and water abundant. There is a beautiful spring about midway, to the left, and another about two hundred yards further on, on the opposite side. When abreast of "San Francisco spring" we left the main road and struck off to the right. Passing the springs, which were full of excellent water, we crossed the valley and encamped for breakfast. Scarcely had we reached the spot when a herd of antelope bounded across the plain within a short distance of our camp ; our hunter, Dick, started in pursuit, and returned in a short time with a noble buck. For a while here the rain poured down in torrents. After breakfast we hitched up and struck off in the direction of our old road ; our new trail was marked with the "blazes." After travelling a short distance with our train, which proceeded at a rapid rate over the firm level road, a party started over to look at a boat which had been hidden by the mail company, and then we returned to the train, which had encamped. We spent about an hour there, and then started and travelled to Colmiric caves ; here a party of us started over to look at the cave ; we found abundant water in the rocks in its vicinity. One train had encamped about 600 yards from the caves, with pure clear water in abundance. We did not enter the cave, but started, under the guidance of Mr. Beale, to look at a deep water-hole. We reached the spot after a short walk, and we found a deep rocky cañon, which, for some distance, was filled with water ; the depth has never been discovered ; the water is of the finest quality, and is easy of access ; in it we saw mountain trout, some evidence of its permanency. It is situated about 200 yards from the road, to the right. In this cañon I observed a rock in which a hole had been bored by the rotary motion given to a pebble by the swift current of water which has passed over it when the pool has been high. Through the lapse of ages the work has been accomplished. The hole, which is perfectly round, is about twelve inches in diameter and about two feet in depth, and the elevated position of the rock gives it the appearance of a mortar. We returned to camp in the midst of a dense rain and dined. After dinner we hitched up and the train started. Mr. Beale ordered Messrs. Carrington, Long, Blount, Thompson, and me to proceed to a mountain about eight miles distant, and to examine the nature of the country and the course of the cañon Diablo. We travelled in a southerly course for about six miles and then encamped for the night. The

country was well wooded with cedar and of a rolling nature. We found water for our animals in a ravine near our camp. The evening was showery.

July 19.—This morning we started and travelled about five miles; we then turned out our animals and breakfasted. We started after our meal, and in a short time we struck cañon Diablo, running north and south. The cañon was about 200 feet in depth, with perpendicular walls of rock. A glance showed that all attempts to cross below or above the point where we struck it would be useless, and we were compelled to return to the road and to give up the cut-off which we had projected. We rode several miles and then descended into a deep cañon, which we supposed to be Walnut creek, and which was a branch of cañon Diablo. We there found a beautiful pool of pure, clear water; it was about five feet in depth; in it we saw many fish resembling trout. We stayed there until 3 p. m., when we again started and travelled until 7 p. m. Two of our mules began to show signs of fatigue; the grass generally was dry and scarce, and they had been travelling steadily. At 10 p. m. we started and travelled by moonlight, reaching the Colorado Chiquito at 11 p. m., and started again at midnight. We saw two antelopes in the morning. The weather was cool and pleasant.

July 20.—We travelled until three a. m., when we turned out until half-past five a. m., when we started and reached "Thompson's spring" at half-past ten a. m. Messrs. Long and Thompson, who had fresh mules, had reached the spring about half an hour before the train started. They gave information of the cause of our detention, and accompanied the train to the crossing of the Colorado Chiquito. At the spring Messrs. Carrington, Blount, and I ate a breakfast which Mr. Beale had kindly left for us. At four p. m. we started, and at eight p. m. we joined the train, which had encamped about a mile from the crossing of the Colorado Chiquito. Rain fell about noon.

July 21.—This morning we started at five a. m., and in a short time we reached the river crossing. On our arrival we found that the water had risen during the night, and that scarcely a trace of the work done there on the preceding day was left. We turned out the mules, and after breakfast the bank was cut down, and we crossed our wagons and stock with but little trouble. About two miles from the river bank we again turned out, and allowed our mules to graze for about two hours, when we again started. Our road, which was nearly parallel to the river, was level and generally hard and firm. In some places the heavy fall of rain had softened the upper soil, but these spots were unfrequent and unimportant. During the day I saw many streams of running water, occasioned by the drainage of rain from the mesas above, running back from the river. We continued our ride until about half-past three p. m., when we again halted. After we had dined we started and travelled some miles further, and encamped about seven p. m. on a slight elevation. Rain fell in heavy showers during the day. The weather was quite cool. From our road we could see that the grass along the river bottom was fresh and plentiful. The grass along the road at some points was excellent.

July 22.—This morning we started about five a. m., and after a ride of a few miles we left the banks of the Colorado Chiquito and struck inland. At a short distance from the river we crossed a running stream of about twenty yards in width, and further on we skirted along a second stream of at least sixty yards in width, and apparently very deep. The water was foaming and boiling in its course to the "Little Colorado," which was about a mile distant. When we passed these places in April last the beds of these rivers were dry, and although they are now of no essential use, their condition in rainy weather will afford a striking evidence of the great amount of rain which falls in this section of our western country. We turned out twice during the day. The roads in some places on the plains near the river bottom were muddy, but they occasioned little delay. We reached Dry creek about five p. m.; we crossed a small stream of water which was flowing slowly through it, and then riding about two hundred yards over its bed we left it, and ascended the mesa on the eastern side. Numerous pools of excellent water were seen near our road. We encamped for the night near one of these, and herded our mules on the excellent green grass, which was abundant. The weather during the day was cloudy, and rain fell in heavy showers several times.

July 23.—This morning early we started, and after a march of about seven miles we reached a bed of a stream which was dry when we passed it in April last, but through which there flowed a small stream of about five yards in width. We breakfasted there, and after a stay of two hours we started, and passing over a level country, generally of a gradually descending grade, we reached Cottonwood creek. Here, indeed, was a change: where we had formerly found only pools of water we now met a swiftly running stream of several yards in width, and in one place so deep that we could not touch bottom. The water was very muddy and cool. We turned out the mules, and every man stopped and assisted in carrying our property across the stream. A place had been found where the stream was about four feet in depth and could be forded with facility. Our baggage-wagons and stock were crossed without loss, and after dinner we started. Travelling about five miles, we reached Navajoe springs, which are five in number. They are within a few feet of the road and yield an inexhaustible supply of the purest water that I have ever tasted. We watered our stock and started for Jacob's well, seven miles distant. Before we reached the well we saw a large pool of rain-water to the left of the road, and there Mr. Beale decided to camp. The evening was remarkably cool and rainy. Two heavy showers of rain fell during the afternoon. It is somewhat singular that, although rain may fall during the day and early in the evening, the nights are invariably clear. The grass on our route to-day, which was principally bunch grass, was in some places green and luxuriant. Our road was hard and firm, except in the vicinity of Navajoe springs, where we found mud for about 200 yards. Bright camp-fires were kept blazing from the cedar in which we had encamped, to keep off the chill of the evening. This morning our hunter, Little Axe, brought in a fine antelope.

July 24.—About 5 a. m. this morning we started. Passing Jacob's

well, we continued our march over a fine level road, well timbered with cedar and affording good grass. We halted at "Jacob's Jump-off," about eight miles distant from the spring, and breakfasted. After staying there about two hours and a half we hitched up and started. Water was seen in large pools in many places along our route, and the sides of Jacob's well bore powerful evidences of the heavy fall of water. Deep gullies had been cut in the soft earth on the grade descending to the water in the well. We continued our march over a rolling country, with much cedar, and in many places excellent grass. We encamped about six miles from the Indian pueblo of Zuñi. The mules were driven over to the creek by which the pueblo is watered, and then herded on the excellent grass which abounded in the vicinity of our camp. Our hunter, Dick, brought in an antelope to-day. The weather during the day was cool and cloudy, with showers of rain during the afternoon and evening.

July 25—This morning, about 4.30 a. m., we started and soon reached the Indian pueblo of Zuñi. The train proceeded above five miles east of the town and then encamped. After breakfast we started, and passing through a narrow valley of about a mile in length, we reached one of our old camps. Here we found a patch of beautiful grass, and Mr. Beale ordered the herders to stop the loose stock for a short time. Leaving this place, we struck the bed of the Ojo Pescado. Following this through a valley for above three miles, we reached the head of the stream. This spring rises from a sandy bed beneath an overhanging ledge of lava rock. The pure, clear water runs rapidly, and forms a stream of miles in length. We spent two hours there and then started and travelled about five miles over a smooth road of continued light ascending grade. We encamped for the night with timber in abundance and a good supply of grass. Large forests of cedar and piñon extended all along the line of our road from the breakfast camp. The grass was generally good. Heavy showers of rain fell during the day. The evening was delightfully cool and clear. A party of Indians from Isleta joined us this evening.

July 26.—This morning about 4.30 a. m. we started from our camp. The ascending grade of the valley continued for about five miles, when we ascended the ridge and we found a descending plain. Passing over a beautiful road, through a country covered with forests of heavy pine timber, and affording excellent grazing, although not so far advanced as some previously seen, we reached El Moro or "Inscription Rock;" we stayed there about two hours, and then started, after watering our stock from the pool of excellent water which is just at the junction of the two wings of the rock. Leaving the mountain and the broad, beautiful valleys which make this rock their grand centre, we passed the large mountain to the right, which shuts the rock from view, and rode at a rapid rate through successive belts of noble pine, and through fertile grassy valleys, until, by an almost imperceptible grade, we reached the summit of the Rocky mountains. We descended the mountain over the well-constructed inclined plane built by our party, and in a few minutes we reached "Aguafria," or "Cold spring." Here is one of the stations of the Central Mail Co. The spring is just to the left of the road; it pours in a crystal stream from a rocky mouth and flows in a clear stream over a pebbly bed for above

five hundred yards ; the water is delicious. In the middle of summer it was so intensely cold that we could hardly drink it. Leaving this place, we proceeded to one of our old camps, in a beautiful valley, about a mile further on. The grass was most luxuriant; our mules were allowed free range, and in two or three hours the herd was satisfied. A fine spring of cold water is on the left of the valley in a small ravine ; it flows from the mountain top, and empties into a stony basin at its foot ; it is perfectly pure, and sufficient for any amount of stock. The day was cool and clear. Our hunter, Dick, brought in an antelope this evening.

July 27.—This morning early we left our camp, and following our road through the heavy pine timber, we passed through a perfect garden. The road, which was of a gravelly nature, was hard and firm. For miles this beautiful travelling extended, and the train passed rapidly over it, making four miles an hour on a walk. We encamped for breakfast at about 7.30 a. m. ; we found water in a rocky hole, about four hundred yards to the left of the road ; the water was of good quality, and looked as if it was permanent. After a stay of about two hours we hitched up, and the train proceeded to the "Ojo del Gallo creek." Mr. Beale ordered Messrs. Carrington, Long, and me to follow a trail to the left, and to join the party on the "Ojo del Gallo," to examine the country for a wagon road, which would make a cut-off of four miles. We did so, and found that the country was impassable for wagons on account of a broad lava bed which our riding animals crossed with much difficulty. The "Ojo del Gallo creek" is about three feet deep and about fifteen in width ; it flows into the Rio Grande ; its current is very swift, and the water is pure and clear. In the stream we saw shoals of fish resembling perch, and quite a mess of them was caught. Along the creek a huge wall of lava has been heaped, layer upon layer, until a huge barrier has been formed around its mouth. Pools of water, clear as crystal, were found in the deep chasms and fissures in its centre. For miles I could trace its dark line running parallel to our road, at some times attaining a width of half a mile. Huge rocks, piled one upon the other, bore powerful evidences of the mighty force which had existed there when this huge furnace of nature had been in blast. The country in its vicinity showed its extent, for the surface for many miles was covered with small chips of the stone. The ridge is crossed by our road at a very narrow point, and the ascent and descent are by no means difficult. We herded our animals on excellent grass near the creek until about six p. m., when we hitched up and travelled about two miles and encamped. Our hunter, Little Axe, brought in a fine antelope to-day. The weather during the day was clear and warm, and in the evening we had a slight shower and a cloudy sky all night.

July 28.—This morning camp was called at 2 a. m., with the intention of making a long, early march, as it was reported that grass could not be found for some distance. Owing to delay in catching the team animals, we did not leave our camp until about 4 a. m. We travelled until near 7, when we found an excellent patch of green grass, and we turned out the mules and breakfasted. We then hitched up, and in a short time we reached the Mexican town of Co-vero. Passing through the town, we travelled over an excellent road

of a descending grade, and camped within two miles of the Indian pueblo of Laguna. We found an abundance of water in some holes; water may always be found in some lagunas near the town. I observed one laguna nearly a half mile in length. Hitching up, we passed through Laguna, and crossed "Laguna river," a stream flowing into the Rio Grande. It is swift, about ten yards in width, and two or three feet in depth. We travelled about five miles beyond the town, and then encamped on the banks of the Laguna river, on a patch of several acres of luxuriant green grass. Timber near the road was scarce, but the mountains were covered with cedar. The weather during the day was cool and clear, and the evening cloudy.

July 29.—This morning we started from our camp on the Laguna river, and after a ride of a few hours we reached "Sheep's springs." These are situated about four hundred yards from the main road; deep and well-marked trails lead to them. The water flows in a rapid stream from the mountain side and pours into a pool which at all times contains an ample supply. The water of one of these springs is very slightly brackish; that of the other is perfectly pure. Grass along our road was backward, but promised to be excellent. The country in this vicinity did not show the mark of heavy rains as much as that further west. Our march from "Sheep's springs" was through a succession of broad, beautiful valleys, running north and south; cedar was in abundance along the route. We encamped within a mile of the "Rio Puerco," with excellent grazing for our animals. The grass was like that mentioned above, but every mile over which we have passed testifies that, as a grazing country, this section of New Mexico cannot be surpassed. We found that the water in the Puerco had risen to such a height that it would be necessary to carry all of our property across and to drag the wagons over. A party started down to the stream, and the wagons were drawn to the banks of the Puerco, and the teams were then sent back. By 6.30 everything was on the eastern side, and the party returned to camp. The weather during the day was cloudy and cool.

July 30.—This morning camp was called at 3.30 a. m., and we started down to the stream. We crossed our stock without difficulty, and hitched up. The water in the river had fallen considerably during the night, so much so that we rode across on our animals. We travelled over a sandy road of a descending grade until 10.30 a. m., when we encamped on the banks of the Rio Grande. The river bottom was covered with an abundance of meadow grass, and for miles we could see the green patches extending along the valley of the river. Our road strikes the river about two miles below the town of Albuquerque. The river had been so swollen by the rain in the mountains in the north that our wagon had to be crossed in a scow, although Mr. Beale crossed on horseback directly opposite Albuquerque. The weather during the day was warmer than any that we have hitherto experienced. This is on account of the great descent from the high land to the valley of the Rio Grande.

Respectfully submitted,

F. E. ENGLE,
Assistant.

E. L. BEALE, Esq.,
Superintendent, &c., &c.

HEADQUARTERS, *Albuquerque, N. M., January 24, 1859.*

DEAR SIR: Your communication of the 22d instant, enclosing the resolutions of the public meeting, requesting my opinion "as to the great importance, necessity, practicability, and probable cost of building and constructing a bridge crossing the Rio Grande at Albuquerque," I had the honor to receive on yesterday.

The importance of a bridge crossing the Rio Grande at or near this city I deem of the greatest necessity, whether to the citizens at large, in passing their merchandise and stores, or to the general government, in the quick despatch of troops, trains, or the mails westward. The Rio Grande is a wide, shallow stream, its bottom of quicksand; in winter the ice is rarely sufficiently thick to bear a loaded wagon, but will mules; in summer the high water washes out deep holes. No river on the globe is more dangerous, or has sacrificed more human and animal lives.

There is not a doubt in my mind but it is perfectly practicable to build a bridge at or near Albuquerque. Its cost will depend upon its location; if at bluff banks, with rocky bottom and banks, much less than where the river is wide, shallow, quicksand bottom, and low banks. I have not sufficient mechanical or architectural knowledge to furnish an estimate to be relied on, but suppose, from the scarcity of wood, stone, and lime in this vicinity, it would be sufficiently safe to say, a durable, substantial, useful bridge could be erected at or near this place for \$50,000.

I am, major, respectfully, your obedient servant,

D. MILES,

Lieutenant Colonel 3d Infantry, Commanding Post.

Major W. L. LAWS,

Chairman of the Committee.

SANTA FÉ, *New Mexico, January 24, 1859.*

GENTLEMEN: In reply to your letter, transmitting the resolutions of the public meeting held at Albuquerque on the 21st instant, I will say that a good, substantial bridge across the Rio del Norte would be most valuable in connexion with military operations. It is well known that high winds and ice frequently prevent crossing for days; also that quicksands at many of the fords are of the most dangerous kinds; and I repeat, a good, substantial bridge across the Rio del Norte is much wanted, not only for military purposes, but for the constant travel of the country.

As to the cost of such a bridge, it is a question more for engineers to decide upon than for myself.

Common *tressel* bridges, fifteen feet wide, I have always believed to be the cheapest of construction, and probably all that is required.

I am, gentlemen, most respectfully, your obedient servant,

B. L. E. BONNEVILLE,

Colonel 3d Infantry.

Major W. L. LAWS,

Chairman of Committee, and others, Albuquerque, N. M.

MILITARY DEPARTMENT OF NEW MEXICO,
Santa Fé, January 29, 1859.

SIR: I have the honor to acknowledge the receipt of your letter, addressed to me under a resolution of the "public meeting" which was held in Albuquerque on the 21st instant, requesting my "views as to the importance, &c., of a bridge across the Rio del Norte at or near Albuquerque, and the probable cost of such bridge;" and in reply thereto, I would respectfully state that it is of the utmost importance to have a bridge in that vicinity, even if there should be no other object in view than to facilitate the crossing of the military trains; for it is not only necessary to cross the river there to communicate from the principal military depot at Albuquerque to all the posts west of the Rio del Norte, but it is generally considered preferable in communicating with the posts in the southern part of the department to pass up and down on the west side of the river, on account of the greater accommodation in regard to wood and water, even in the face of the necessity of also crossing the river to the south of the "Jornada del Muerto."

During the long periods of low water in the Rio del Norte it is impossible to cross in the ferry-boat, owing to the great extent of shifting sands; and these same sands, and the uncertainty of the depth in the channels, and of the permanency of the river banks, render it a dangerous undertaking to attempt to ford this stream. But it is also to be observed that the "great military road" from Fort Smith (Arkansas) to California, now in the course of construction under the direction of the War Department, "on or near the thirty-fifth parallel of north latitude," crosses the river in the same vicinity; and this road is destined to be of vast importance as a mail route, and the most desirable one for the tide of emigration to California; hence the "importance, necessity, and utility of a bridge" in the vicinity above named must be apparent to every one. From the well-known abundance of the best pine timber and stone within easy reach of the locality in question, there can be no doubt as to the "practicability" of constructing the desired bridge at a reasonable cost; but an estimate in detail can only be presented after a careful preliminary survey of the different sites deemed eligible near Albuquerque. The enclosed copy of a report made by the Committee on Military Affairs at the last session of Congress will show what is required for the suitable surveys upon which to base estimates for the bridges that are required over the Rio del Norte, and I deem the one near Albuquerque the most important of them all.

I remain, very respectfully, your most obedient servant,

JOHN N. MACOMB,
*Captain Topographical Engineers,
 United States Army.*

Mr. W. L. LAWS,
Chairman of Committee, &c., Albuquerque, N. M.

ASSISTANT QUARTERMASTER'S OFFICE,
Albuquerque, New Mexico, February 3, 1859.

SIR: Your communication of the 22d ultimo has been received. Owing to my having been much occupied, I have not been able to reply to it at an earlier date.

As to the importance and necessity of a bridge across the Rio Grande at or near this point there can be no doubt.

I believe there are several points near here where a bridge can be constructed without any great difficulty or expense. The difficulty of fording or ferrying the Rio Grande during many months of the year is well known to all our citizens.

A bridge across the river at this point would be of incalculable benefit to the army in its operations in this country, as well as to the community at large.

The principal depot of army stores being at this place, and the roads to many of the posts in the department crossing the river at this point, renders the construction of a bridge near here more necessary than at any other place on the river.

During the time I have been serving at Albuquerque considerable delays have frequently occurred in crossing stores and troops destined for different posts and operations in the field, which delays would have been obviated had there been a suitable bridge.

I have the honor to be, sir, very respectfully, your obedient servant,

D. H. RUCKER,

Brevet Major, Assistant Quartermaster.

W. L. LAWS, Esq.,
Chairman of Committee, &c.

ITINERARY.

Date.	Camp.	Viameter distance in mls.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camp.
		Last camp.	Ft. Smith.						
Oct. 27	Fort Smith.	.....	.....	35 23 55	94 21 00	2 p.m.	.....	.....	.....
30	No. 1.	.....	11.60	35 15 45	94 36 33	7 a.m.	6 p.m.	4	Camp on edge of small prairie. Wood, (hickory, oak, &c.), water, and grass abundant.
31	No. 2.	12.80	24.40	35 19 20	94 47 45	6.30 a.m.	2 p.m.	5	Camp in large prairie near skirt of timber. Wood, water, and grass abundant.
Nov. 1	No. 3.	14.00	38.40	35 19 40	95 01 52	7 a.m.	2 p.m.	6	Camp near small prairie. Branch near; grass plentiful; wood convenient.
2	No. 4.	8.30	46.70	35 18 31	95 10 55	8 a.m.	10 a.m.	3	Camp in prairie, with wood and water close by.
3	No. 5.	15.40	62.10	35 15 29	95 28 44	8 a.m.	2.30 p.m.	6.30	Camp in timber on edge of prairie. Water convenient.
4	No. 6.	11.50	73.60	35 17 51	95 45 23	9 a.m.	3.30 p.m.	5	Camp near North Forktown. Wood, water, and grass.
5	No. 7.	14.30	87.90	35 15 22	95 56 44	7.30 a.m.	2.30 p.m.	5.30	Camped near Indian settlement on banks of small stream.
6	No. 8.	19.00	106.90	35 14 47	96 15 12	8.40 a.m.	3 p.m.	7.30	Camped on edge of prairie, near Indian settlement, with plenty of wood, water, and grass.
7	No. 9.	14.20	121.10	35 12 48	96 27 47	8.40 a.m.	3.30 p.m.	5.20	Camped in grove on banks of small creek. Wood, water, and grass abundant.
8	No. 10.	11.70	132.80	35 08 05	96 36 31	7.30 a.m.	2.30 p.m.	5.50	Camped in timber, one mile south of Aird's trading post, at Little river. Wood, water, and grass.
10	No. 11.	1.31	134.81	35 08 41	96 37 40	10.30 a.m.	8.15 a.m.	0.45	Camped on small tributary of Little river, with plenty of wood and good grass convenient.
11	No. 12.	7.40	141.51	35 09 55	96 43 17	8 a.m.	2.30 p.m.	2.30	Camped on banks of Little river in small grove. Grass good.
12	No. 13.	15.10	156.61	35 06 34	96 56 09	7.15 a.m.	2 p.m.	4.30	Camped in prairie, with wood and water convenient. Grass very luxuriant.
13	No. 14.	16.01	172.62	35 02 05	97 10 45	7.10 a.m.	1 p.m.	5.45	Camped in skirt of wood near prairie. Large pool south of camp. Excellent pasturage.
14	No. 15.	17.40	190.02	34 56 28	97 25 33	7 a.m.	2.30 p.m.	6.50	Camped in timber at Owl creek, with good grass.

ITINERARY.

Character of country traversed between camps.	Waters between camps.	Prominent land marks.	Game.	Indians.	Thermometer.		
					Sunrise.	Noon.	Sunset.
Road for ten miles through low grounds of Arkansas river. Country heavily timbered. Remainder of distance chiefly prairie; surface rolling.	Branch at Warrens. 10 miles from Ft. Smith.	.....	Deer abundant; quail and prairie chickens in great numbers. A few wild turkeys.	Ch'taw tribe.	56	65	60
In three miles passed Scullyville. Country gently undulating and well timbered. Beyond Scullyville sharp ascent to high prairie. Road good; rolling; firm surface.	Br'ch at Scullyville, 5 miles from No. 1, Red Bank cr'k.	.....	.....	Semi-civilized.	50	61	57
Road through prairie and wood land; the former predominating. Surface undulating and firm.	9 miles from No. 2, Little Sans Bois creek; 12 miles, Sans Bois creek.	.....	.....	.....	48	56	52
Country rather level. Forest and prairie alternating. Road good.	1 mile, small creek.	Isolated knob left of road, 5 miles from No. 3.	.....	.....	47	58	53
Good road for three miles. Crossed rocky spur from southern hills. Beyond smooth and good road through prairie chiefly.	5 miles, small cr'k; 7 mls., Longtown creek.	.....	.....	.....	45	58	52
Prairie for four miles to foot of Winchester mountain. Rather difficult ascent; rocky. On western slope excellent road.	2 miles, small cr'k; 9 miles, Canadian river; 11 miles, creek.	5 miles from No. 5, summit of Winchester mountain.	.....	Creek tribe and Semi-noles.	42	55	49
Rolling country. A few small prairies. Settlements frequent. Soil apparently excellent. Timber abundant, and of large size.	2 miles, small cr'k; 8 miles, creek.	.....	.....	.....	41	54	47
Country broken. High range of hills two miles south. Prairie almost continuous.	5 miles, creek; 8 miles, creek; 11 miles, creek.	High range of hills south of road.	.....	.....	44	56	48
Road almost exclusively through timber. Surface undulating. Some rocky ascents in crossing spurs of Boston mountain.	2 miles, creek; 8 miles, creek.	.....	.....	.....	40	51	47
Crossing spurs of Boston mountain. Road rough and rocky until near Little river; then level and sandy.	5 miles, branch; 8 miles, creek; 11 miles, small cr'k.	.....	.....	.....	35	65	51
Country well timbered, and quite thickly settled. Soil good. Surface rolling.	8 miles, creek; 9 miles, branch; 10 mls., Sandy cr'k; 11 miles, Little river.	.....	.....	.....	47	56	48
Surface much broken by spurs from Little River Hills. Passed several Indian settlements. Timber predominating.	Passed numerous arroyos.	.....	.....	.....	36	56	50
Surface rolling; road good. Passed a small Indian town and several settlements. Country well timbered.	6 miles, creek.....	.....	Numbers of deer.	.....	35	52	47
Prairie for five miles. Remainder of the distance through forest. Passed Chisholm's 1 mile south; the last settlement near the road.	Almost all the ravines making from the ridge will afford water.	.....	Pr'rie chickens.	.....	32	50	45
Excellent road over an undulating surface, with forest and prairie alternating. Soil apparently very good.	The same remark will apply to this day's march.	.....	.....	.....	37	52	48
Country rolling; prairie chiefly. Surface very firm. Abundance of timber right and left within easy reach.	9 miles, creek.....	.....	At Choteau's creek a number of turkeys were killed.	Kichai Indians.	45	54	50

ITINERARY

Date.	Camp.	Viameter distance in mls.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camp.
		Last camp.	Ft. Smith.						
Nov. 16	No. 16.....	10.14	200.16	34° 59' 14"	97° 34' 03"	8 a.m....	1 p.m....	5	Camped in low grounds of Choteau's creek. Wood, water, and grass abundant.
17	No. 17.....	2.80	202.96	35° 03' 29"	97° 39' 31"	7.30 a.m.	9 a.m....	1	Camped in valley of Canadian. Good grass and plenty of wood.
18	No. 18.....	11.80	214.76	35° 04' 51"	97° 42' 28"	7.45 a.m.	1 p.m....	5	Camped at Walnut creek, in grove. Excellent pasturage.
21	No. 19.....	9.27	224.03	35° 08' 17"	97° 48' 56"	9 a.m....	12 m.	4.15	Camped in grove of black-jack near small creek, with good grass.
22	No. 20.....	5.05	229.08	35° 11' 29"	97° 52' 07"	9 a.m....	12 m.	2	Camped on small branch, tributary of Walnut creek, and in grove of black-jack.
23	No. 21.....	1.58	230.66	35° 13' 33"	97° 53' 22"	10 a.m....	10 a.m....	1	Camped in timber near small branch. Grass plentiful.
24	No. 22.....	3.44	234.10	35° 14' 17"	97° 54' 30"	9.30 a.m.	11.30 a.m.	1.30	Camped in prairie between two small branches, whose banks were lined with timber.
25	No. 23.....	5.58	239.68	35° 14' 46"	97° 56' 54"	8 a.m....	12 m.	2.30	Camped at Coyote creek. Wood, water, and grass in abundance. This creek has an extensive and apparently fertile valley.
27	No. 24.....	11.03	250.71	35° 14' 21"	97° 54' 32"	7.30 a.m.	1 p.m....	5.30	Camped on small branch, with wood convenient; grass very luxuriant.
28	No. 25.....	12.31	263.02	35° 17' 19"	98° 05' 08"	9 a.m....	1.30 p.m.	6	Camped at Breckenridge's pool, a fine spring; abundance of wood and good grass.
29	No. 26.....	14.65	277.67	35° 23' 45"	98° 12' 57"	7 a.m....	2.30 p.m.	5.30	Camped on small branch, tributary of the Canadian, with plenty of wood and grass.
30	No. 27.....	9.00	286.67	35° 27' 19"	98° 28' 29"	6.35 a.m.	10.30 a.m.	3.30	Camped at head of Sugar Camp bottom, with plenty of wood, water, and grass convenient.
Dec. 1	No. 28.....	19.56	306.23	35° 25' 40"	98° 38' 32"	7 a.m....	4 p.m....	6.40	Camped on headwaters of Clear creek, with water and grass abundant, and wood enough for camp use.
2	No. 29.....	14.56	320.79	35° 30' 15"	98° 51' 55"	4 p.m....	5 p.m....	6.30	Camped at Elm creek, Washita water, with good grass, water, and wood.
4	No. 30.....	1.78	322.57	35° 32' 17"	99° 06' 51"	8 a.m....	4.30 p.m.	0.30	Camped on banks of Washita; wood, water, and grass abundant. The valley is wide, and soil excellent.
5	No. 31.....	2.78	325.55	35° 31' 18"	99° 09' 27"	10 a.m....	9.30 a.m.	1.30	Camped at Comet creek. Fine sheltered camp, with wood, water, and grass in plenty.

—Continued.

Character of country traversed between camps.	Water between camps.	Prominent land-marks.	Game.	Indians.	Thermometer.		
					Sunrise.	Noon.	Sunset.
Crossed low grounds of Canadian to west side of river. At the ford care should be taken to avoid quicksands. Bottom lands apparently very fine.	1 mile, Canadian river.	.....	.....	.....	18	48	38
Fine road on divide between Walnut creek and Canadian. Prairie exclusively. Luxuriant grass.	.....	.....	.....	.....	37	38	29
Country rolling. Prairie almost exclusively. The timber black-jack and small. Country here is well watered.	.....	.....	Buffalo seen for the first time to-day.	.....	25	25	22
Prairie chiefly, and sometimes passing a small belt of the Cross Timbers. Surface rolling and firm.	.....	.....	.....	.....	39	40	31
Road for the most part through belt of Cross Timbers. Country undulating. Road good. The grass very fine.	.....	.....	.....	.....	35	38	31
Road upon divide between Walnut creek and Canadian level and good. Some timber along the route.	.....	.....	.....	Seminole Indians.	27	37	32
Road on divide between Washita and Canadian smooth and good. Prairie almost exclusively.	.....	.....	.....	.....	36	52	45
Road through prairie exclusively. Timber showing along the little branches running to the rivers. Surface level and firm.	.....	.....	.....	.....	34	40	39
Road along divide, between Coyote creek and Canadian river gently rolling and firm; prairie exclusively. Belts of Cross Timbers in view.	Canadian river from two to three miles north. No streams crossed.	.....	Buffalo, antelope, prairie chickens, and turkeys.	Seminole ..	56	65	49
Passed some belts of timber, country broken; road tolerably good; surface firm.	.....	.....	.....	.....	35	46	41
On the divide, between Canadian and Washita country rolling and road good. In sight of natural mounds.	.....	Six miles, passed Rock Mary, 3 miles south. Natural mounds, a little southwest of camp 27.	.....	.....	35	57	45
On the divide road level and good; no timber; grass very abundant and fine. Buffalo.	Eleven miles, small creek, with wood.	For six miles mounds on either side of road.	.....	.....	31	51	41
Road along heads of arroyos leading to the Washita; country rolling; plenty of timber and good grass.	Six miles, Gypsum creek, well wooded; eleven miles, Bear creek, timber.	Ten miles, Dome rock one mile south.	.....	.....	50	61	51
Up valley of Washita river fine country; grass very luxuriant; well timbered.	.....	.....	.....	.....	24	25	22
Up the Washita smooth, level road over a magnificent country well timbered and watered.	.....	.....	.....	.....	10	25	21
On the table lands north of the Washita country rolling; surface firm and road good; prairie exclusively.	All the arroyos will furnish wood and water at short distance from the trail; two miles, Marcon creek, wood; 8 miles, Wood c'k, plenty of wood.	.....	.....	.....	15	40	32

ITINERARY

Date.	Camp.	Viameter distance in mls.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camp.
		Last camp.	Ft. Smith.						
Dec. 6	No. 32....	16.91	342.26	35 18 30	99 12 31	8.15 a.m.	4 p.m....	6	Camped on west fork of Silver creek, tributary of Washita; grass and water abundant, and wood enough for camp use.
7	No. 33....	11.07	353.33	35 39 19	99 25 19	3 p.m....	4 p.m....	5.15	Camped at Oak creek; wood, water, and grass in plenty.
8	No. 34....	1.75	355.08	35 41 59	99 33 27	8.15 a.m.	4 p.m. ...	1	Camped again on Oak creek, west branch.
9	No. 35....	17.05	372.13	35 44 05	99 34 20	9 a.m....	3.30 p.m.	7.15	Camped on small branch, tributary of the Canadian, with abundant wood, water, and grass.
10	No. 36....	9.30	381.43	35 49 22	99 48 29	8.15 a.m.	3 p.m....	4 30	Camped on small branch. Fine black sulphur spring near. Wood and grass abundant.
11	No. 37....	14.73	396.16	35 53 53	99 54 37	7.30 a.m.	2.30 p.m.	6.15	Camped at Grape creek. Abundance of wood and fine grass. Pretty country.
12	No. 38....	14.35	410.55	35 53 24	100 03 55	7.30 a.m.	3.30 p.m.	6.30	Camped at small creek, with wood and grass.
13	No. 39....	16.45	426.96	35 53 58	100 15 14	7.15 a.m.	4 p.m....	6.30	Camped at Dry river. Grass scanty; wood enough. Barren sand hills around.
14	No. 40....	17.07	444.03	35 53 06	100 35 57	7.15 a.m.	3 p.m....	6	Camped on banks of small creek, with plenty of wood and grass.
15	No. 41....	11.60	455.63	35 58 27	100 48 56	7 a.m....	2 p.m....	4.45	Camped in valley of the Canadian. Plenty of grass and wood.
16	No. 42....	13.06	468.69	35 58 31	101 04 10	7 a.m....	3 p.m....	6	Camped in valley. Wood and grass.
17	No. 43....	19.35	488.04	35 54 29	101 17 24	7 a.m....	5 p.m....	8	Camped at Moale creek. Plenty of wood and fine grass.
18	No. 44....	15.52	503.56	35 45 51	101 32 25	6 a.m....	5 p.m....	7.30	Camped at Antelope creek. Water and grass plentiful, but very little wood.
19	No. 45....	21.09	524.65	35 39 20	101 42 07	6 a.m....	3.30 p.m.	9.30	Camped at Shady creek. Fine camp; well sheltered.
20	No. 46....	20.24	544.89	35 24 31	101 54 03	5 a.m....	5 p.m....	9	Camped at Beautiful View creek. Grass and water, but no wood.

—Continued.

Character of country traversed between camps.	Waters between camps.	Prominent landmarks.	Game.	Indians.	Thermometer.		
					Sunrise.	Noon.	Sunset.
Country similar to that traversed yesterday.	.....	.....	.....	.....	27	40	36
Moved up valley of Oak creek. The valley of this creek is quite extensive; the soil good, and the timber large oak, hackberry, &c., plentiful.	.....	.....	.....	.....	11	15	12
Crossed divide between Canadian and Washita. From top of ridge the Antelope hills can be seen. Road rough, descending towards the Canadian.	One mile, fork of Oak creek.	From top of ridge Antelope hills can be seen.	.....	Comanches & Kioways, entirely savage.	8	35	22
Road along spurs of the divide rough and difficult. In five miles struck the valley of the Canadian; at this point very fine.	Eight miles, water can be had in head arroyos of Buffalo creek.	.....	.....	.....	10	45	21
Up the valley of the Canadian good road to Antelope hills. Ascent to high lands sharp but smooth; beyond fine prairie road.	.....	9 miles, Antelope hills.	.....	Comanche & Kioway tribes, entirely savage.	27	50	33
High prairie road, gently undulating; surface firm. Luxuriant grass. Grapevines in all the bottoms.	.....	.....	The last buffalo seen to-day.	.....	15	38	32
Up valley of Canadian good road. Country well watered and pretty well timbered.	5 miles, Wolf creek; 9 miles, Floyd's creek. Both wooded.	Natural mounds 5 miles south of Floyd's cr'k.	Antelope & turkeys plentiful.	.....	42	60	46
Road along Canadian, sometimes on first plateau, good and firm. Soil of the valley excellent. Grass very luxuriant.	9 miles, Chisholm's creek; 10 miles, creek, (Wine); 15 miles, branch.	Natural mounds 3 miles south of Wine creek.	.....	.....	22	50	36
Road in valley tolerably firm and never boggy. Frequent mottes of timber—cotton-wood and hackberry. Grapevines abundant.	7 miles, Valley river, wood.	Mesas north side of river.	.....	.....	27	31	30
Up the valley, country similar to that passed yesterday. Soil excellent, and grapevines in plenty.	5 miles, Chester cr'k, large stream, well wooded; branch.	.....	.....	.....	21	53	41
The width of the valley of the Canadian diminishes here. Road good. Soil very good. Mottes of timber on both sides of river	9 miles, Bluff cr'k, wood; 11 miles, large cr'k, wood; 18 miles, creek.	5 miles, remains of adobe fort on north side of river, 3 mls. from trail.	.....	.....	17	48	41
Up the valley, 4 miles, left it and ascended the table-land. Timber scarce in this day's march. Road good, except at ascent of the high lands.	4 miles, small cr'k, wood; 7 miles, arroyo, with pools and wood.	.....	.....	.....	25	61	40
Rolling country and good road. Some cedars along this route, within reach. Cacti appear.	14 miles, arroyo; 16 miles, branch; both wooded.	4 miles, passed Ab's Head, small butte half mile south of trail.	.....	.....	32	59	41
Road along Shady creek sandy; beyond, firm and good. Passed some small groves of timber.	7 miles, spring and pools, wood; 9 miles, arroyo with pools; 14 miles, Red Bank creek, water, no wood.	Llano Estacado in sight, southwest.	.....	.....	38	50	43
Excellent road over rolling country to foot of Llano Estacado. Ascent of the Llano steep but smooth. Sides of the Llano lined with cedar.	11 miles, arroyo with pools, wood; 18 miles, Rincon de la Cruz, wood and water.	.....	.....	.....	26	51	38

ITINERARY

Date.	Camp.	Viameter distance in mls.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camp.
		Last camp.	Ft. Smith.						
Dec. 21	No. 47....	21.97	566.86	35 22 10	102 09 43	5 a.m....	5.30 p.m.	10	Camped on Llano Estacado. Fine grass, but no wood or water within reach.
22	No. 48....	25.75	592.61	35 19 07	102 29 51	5.30 a.m.	6 p.m....	10	Camped at Rocky Dell creek. Water in pools, & enough wood for camp use.
23	No. 49....	20.40	613.01	35 18 12	102 55 32	4.45 a.m.	4 p.m....	8	Camped at small creek, with water and grass, but no wood.
24	No. 50....	27.95	640.96	35 09 44	103 24 39	5 a.m....	5 p.m....	10.45	Camped at arroyo, with pools of water and some wood. Excellent pasturage.
25	No. 51....	24.62	665.58	35 07 50	103 55 48	5.30 a.m.	5.20 p.m.	9	Camped at Tucumcari creek. Large pools of muddy water (sweet) and grove of cotton-wood.
26	No. 52....	16.72	682.30	35 02 33	104 13 56	5 a.m....	11.30 a.m.	6	Camped at Laguna Colorado; a large pool of muddy but sweet water. Timber convenient, grass good.
27	No. 53....	20.35	702.65	35 02 26	104 33 25	4.45 a.m.	3.40 p.m.	8.40	Camped at Cuerbito creek, a small branch. Wood & grass.
28	No. 54....	23.60	726.25	35 14 41	104 49 59	9 a.m....	5.30 p.m.	10.15	Camped at head of arroyo, with water in pools, and plenty of cedar convenient; good grass.
.....	No. 55....	14.03	740.28	35 18 46	105 01 42	.....	3 p.m....	6	Hatche's Ranch, on banks of Gallinas river.
Feb. 26	Hatche's Ranch.	.....	740.28	.....	.....	10 a.m....	.....	.....	.....
27	No. 56....	14.80	755.08	35 12 02	105 16 18	5 a.m....	3 p.m....	5	Camped in valley of Pecos river; wood and grass; near Tocolito, a Mexican village.
28	No. 57....	20.50	775.58	35 14 21	105 34 35	7.30 a.m.	3 p.m....	7	Camped in Cañon Blanco. Wood and grass, and water in the mesa in large pool.
Mar. 1	No. 58....	14.37	789.95	35 23 37	105 45 19	7 a.m....	2 p.m....	.....	Camped one mile east of Lagunas; wood, water, and grass.
2	No. 59....	25.60	815.55	35 16 51	106 00 35	10 a.m....	5 p.m....	8.30	Camped in timber near small branch; excellent camp; pasturage good.
5	No. 60....	16.16	831.71	35 15 39	106 15 27	9 a.m....	3 p.m....	5	Camped in gorge one mile from road, with abundance of wood and water; but little grass.

—Continued.

Character of country traversed between camps.	Waters between camps.	Prominent landmarks.	Game.	Indians.	Thermometer.		
					Sunrise.	Noon.	Sunset.
Road along Llano Estacado perfectly level; surface firm. Ground covered with buffalo grass, but no timber in sight during the whole day's march, except in the cañon.	Eight miles, Agua Piedra, wood.	.....	.....	.....	32	48	36
Road over a gently undulating surface near bank of the Llano. Fine road, firm and smooth.	11 miles, Emigrant creek; wood; the arroyos on this day's m'ch some time contain water.	.....	Antelope very numerous.	Comanche & Kioway tribes.	3	58	47
Country similar to that traversed yesterday. Fine road. The slopes of the Llano, two miles south, lined with cedar.	2 miles, arroyo with holes; five miles, Halt creek; water, but no wood. 11 miles, arroyo with pools. No wood.	.....	.....	.....	12	48	32
Country rolling; road excellent. High mesas on all sides. Water scarce, but grass luxuriant. Tops and sides of mesas generally covered with cedar.	4 miles, Fossil cr'k. 13 miles, Tucumcari cr'k. Wood.	6 miles, Big Tucumcari (mesa), 1 mile, S. 9 miles, Little Tucumcari, 2 miles N.	.....	.....	30	55	45
Road up Plaza Larga, a beautiful gorge, shut in by mesas. Fine road, surface covered with fine gravel at many points.	.....	Pyramid Hill, 2 miles left of road.	.....	.....	39	48	35
Country broken; the road crossing spurs of mesas. Cedar and piñon abundant for several miles. In the open country road smooth.	9 miles, Arroyo de Fajardo; no w'd. (Water in pools.)	Curious mesa, S. of road, 2 miles E. of camp.	.....	.....	37	63	45
Fine road over rolling country; crossing divide between Canadian and Gallinas; excellent grass.	13 miles, L'Assisteros arroyo, with pools. No wood.	.....	.....	.....	26	55	44
Fine road, descending from high lands to Gallinas valley. From top of divide, Santa Fé mountains in sight.	10 miles, spring and water in pools. Wood.	.....	.....	.....	39	50	36
.....
Fine, smooth road to the descent to the Pecos river. There the road was somewhat rocky. Ford good. Beyond sharp ascent rather smooth.	Water at the Chupinas, 6 miles, and Pecos, 12 miles.	Man-of-War butte, 10 miles, $\frac{1}{2}$ right.	Antelope, wild turkeys, deer, ducks, and partridges, in great abundance.	.....	48	60	56
In 5 miles over rather rough road came to main road to Albuquerque, from Anton Chico. Eight miles entered Cañon Blanco; excellent road; wood in plenty.	14 miles, laguna, sometimes with water.	.....	.....	.....	48	60	56
Road up the Cañon Blanco for thirteen miles somewhat sandy, but generally good; timber abundant; pine and piñon.	12 miles, water right of road.	.....	Great numbers of prairie dogs.	.....	42	64	58
Fine prairie road, with two or three belts of cedar crossing it; surface gently undulating.	No water on this day's march, 13 miles; 3 miles right, artesian well; 12 miles, water.	.....	.....	.....	38	40	30
Road over a rolling prairie, sprinkled with pine and cedar; surface firm, and road excellent.	.....	.....	.....	.....	24	36	30
In five miles entered the Cañon Carnuel, fine road through it. Passed a number of Mexican settlements and villages.	Water can be had anywhere in the Cañon Carnuel.	.....	.....	.....	25	38	31

ITINERARY

Date.	Camp.	Viameter distance in mls.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camp.
		Last camp.	Ft. Smith.						
Mar. 6	No. 61....	10.17	841.88	35 07 54	106 23 42	8 a.m....	12 m....	3	Camped at the house of Carnuel.
....	No. 62....	12.00	853.88	35 01 48	106 37 36	.....	.....	.....	Camped at small Mexican village, two miles south of Albuquerque.

—Continued.

Character of country traversed between camps.	Waters between camps.	Prominent land- marks.	Game.	Indians.	Thermome- ter.		
					Sunrise.	Noon.	Sunset.
One and a half mile to mouth of cañon; thence fine prairie road to valley of the Rio Grande.	° 38	° 61	° 45
.....

E. F. BEALE, *Superintendent.*

ITINERARY

Camp.	Viameter distance in miles.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camp.
	Last camp.	Fr. Smith.						
Albuquerque ...	855.88	35 04 56	106 38 32	10 a.m.	.....	.....	.....	.....
Atrisco.....	2.10	857.98	.....	.....	5.30 a.m.	11 a.m.	5	Camp in wide, sandy river bottom. Grass good of its kind and in sufficient quantities, but the quality indifferent. Wood scarce.
Rio Puerco.....	20.63	878.61	35 02 56	106 56 20	6 a.m.	3 p.m.	7.30	But little grass at the crossing. After crossing the Puerco, a mile on the other side, to right of road some distance, grass abundant. The Puerco water brackish, sometimes too abundant, and at others not quite enough.
Near Puta.....	19.44	898.05	35 03 06	107 14 23	6 a.m.	3 p.m.	7	Grass generally eaten off; water tolerable. Cedar and pine on the bluff above the spring.
Cooera.....	13.09	911.14	35 05 22	107 26 21	5.30 a.m.	1 p.m.	5	Camp at a Mexican town. All thieves and generally drunk.
Hay Camp.....	13.06	934.20	35 04 32	107 39 12	5 a.m.	12.45 p.m.	5.15	A wide bottom; grass abundant. Best camp on opposite side of creek. Wood, cedar.
Agua Frio.....	15.37	949.51	35 01 36	107 58 20	5.15 a.m.	5.15 p.m.	9.15	Extensive valley above and below spring. Pine forests on both sides; grass abundant.
Inscription Rock	16.28	965.85	35 02 41	108 14 21	5 a.m.	1.15 p.m.	6	A wide valley; grass, wood, and water abundant.
Ojo del Pescado.	16.32	982.17	35 07 05	108 27 54	5 a.m.	1.30 p.m.	6.15	A fine stream of pure water. Grass and wood abundant.
Zufi.	15.13	997.30	35 04 03	108 42 45	5 a.m.	1 p.m.	5.45	An extensive plain, covered with Indian cornfields. Corn forage to be obtained here.
Indian Well ...	6.19	1,003.49	.....	.....	11 a.m.	9 a.m.	3	Abundance of wood and grass.
Leroux Spring..	9.06	1,203.67	35 16 48	111 40 17	5.30 a.m.	1 p.m.	3	A place of remarkable beauty; a stream running from the spring; wide, open valley, surrounded by pine forests.
No. 13.....	8.48	1,212.15	35 18 02	111 48 15	5.30 a.m.	8.30 a.m.	3	Open glade and pine forest; grass abundant.
Breckinridge Spring.	11.13	1,223.28	35 20 30	111 57 10	5.30 a.m.	9.30 a.m.	4	Abundance of living water and grass, surrounded by pine forests.
No. 14.....	8.07	1,231.35	35 20 30	112 01 21	6 a.m.	8.30 a.m.	3	Same as above.....
Law's Spring...	6.50	1,237.85	35 22 08	112 07 30	6 a.m.	8.30 a.m.	2.30	Same as above.....

—Continued.

Character of country traversed between camps.	Waters between camps.	Prominent land- marks.	Game.	Indians.	Thermome- ter.		
					Sunrise.	Noon.	Sunset.
.....	°	°	°
A long sandy ascent of several miles, following which a plain, (also sandy,) until near the Puerco, to which the road descends several miles before arriving at its banks. But little grass on the road.	.....	.....	.....	Navajos	71	85	68
Country rolling; somewhat sandy. Cedar at intervals for timber.	Laguna, an Indian town; 7 miles, abundance of water.	.....	Beaver plenty in the Gallo.	.....	56	78	56
Road excellent; a little sandy in places, generally level.	.....	.....	Canvas-back ducks abundant in winter.	.....	56	74	63
Road excellent, undulating. First camp at Gallo river; best camp three miles above.	Four miles from the Gallo, to the right of the road, some three miles off, a fine spring of water, and grass very abundant.	.....	.....	.....	54	65	60
Ascending grade, gentle; road very good. Grass plenty. Pine and cedar in abundance.	A mile east of Agua Fria, water just to the right of road.	.....	.....	.....	55	80	67
Cross the back bone of the Rocky mountains, first five miles, country rolling, remainder almost level; a little sandy. Timber and grass abundant.	To right of road, 4 miles, as one enters the great valley, a very large spring.	.....	Deer, antelope, and wild turkeys.	.....	61	79	66
Undulating; abundance of wood and grass; soil a sandy loam.	.....	A cliff isolated, 300 feet high, covered with hieroglyphics at the base; ancient remains of buildings on summit.	.....	Zuñiuns	62	73	65
Descending grade all the way. Road excellent. Best camp six miles east of Zuñi.	Water 6 miles east of Zuñi.	.....	.....	.....	58	84	76
Level; passing through cornfields.	.....	.....	.....	Navajos	58	87	68
Country rolling; covered with cedar, and open spaces bearing fine grass.	.....	.....	.....	.....	55	72	61
Country undulating; road through open pine forests. Grass abundant.	.....	.....	.....	.....	47	72	62
Same as above .....	.....	.....	.....	.....	38	72	60
Same as above	Two miles directly on the road to Bear Spring, a cluster of six or seven springs within ten acres.	.....	.....	.....	60	73	64
Same as above .....	.....	.....	.....	.....	42	85	60
Country rolling; divided between pine and cedar forests and open spaces; grass abundant.	.....	.....	.....	.....	62	83	71

ITINERARY

Camp.	Viameter distance in miles.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camp.
	Last camp.	Ft. Smith.						
King's Creek...	10.50	1,248.35	° / ' "	° / ' "	5.30 a. m.	9.30 a. m.	3.30	A deep ravine, sometimes not fordable, at others dry; grass abundant; forests of pine and cedar.
Alexander's Cañon.	19.75	1,268.10	35 20 32	112 35 28	6 a. m....	2.30 p. m.	7	Water at mouth of cañon, and generally above it; a wide valley; grass and wood abundant; cedar and pine.
Floyd's Peak...	8.05	1,276.15	35 19 45	112 42 53	12 m.....	9 a. m....	3	Water in all the ravines generally, always at Kerlin's well. Country open; abundance of timber and grass.
Pass Dornin	8.75	1,284.90	35 13 05	112 45 17	5.30 a. m.	3 p. m....	3	A wide flat covered with cedar at entrance of magnificent valley, 8 miles wide by 50 in length. Grass abundant; no water.
No. 19.....	13.50	1,298.40	35 16 19	112 58 11	6 a. m....	11 a. m...	4.30	Country flat. Timber from three to four miles to left; cedar and pine. Grass abundant.
No. 20.....	16.35	1,314.75	35 20 37	113 12 08	3 p. m....	2 p. m....	6	A small spring in ravine to left of road. Pine and cedar abundant, and grass.
Hemphill's Sp'g.	4.06	1,318.81	35 22 18	113 16 57	5.30 a. m.	4.30 p. m.	1.30	A fine valley; cluster of bold springs surrounded by cane. A grove of cotton-wood and willow trees. Small stream running off from springs.
White Rock Spg.	21.25	1,340.06	35 20 17	113 35 40	6 a. m....	3 p. m....	7.30	A fair camp in a cañon, sides precipitous and high. Spring under a white blotch near the top of cañon.
No. 1.....	14.43	1,017.92	35 04 01	109 01 48	5 a. m....	6 p. m....	5	Abundance of grass & wood. No water.
Jacob's Well ...	11.93	1,029.85	35 03 54	109 14 06	6 a. m....	11 a. m...	4	A remarkable depression in the ground, 300 ft. in depth; a wide pool of living water, 30 yards in diameter, 25 in depth; at bottom grass abundant. No timber nearer than one-third of a mile.
Navajo Spring..	6.57	1,036.42	35 06 10	109 20 10	5.30 a. m.	9 a. m....	3	Breaking out of a flat; the water abundant, and constant mud springs; dangerous to stroll in immediate vicinity.
No. 3.....	19.75	1,056.17	35 03 05	109 37 50	6 a. m....	2 p. m....	6.30	A wide sandy bottom, sometimes containing water in abundance, at others scarce; but little wood.
No. 4.....	15.00	1,071.17	35 03 23	109 50 47	6 a. m....	1.30 p. m.	5.30	Banks of the Puerco; sometimes water abundant, at others scarce; only greasewood; grass abundant.
Three Lakes....	3.60	1,074.77	.....	.....	5.15 a. m.	7.30 a. m.	1.30	Country flat; greasewood plenty; water sometimes abundant.
Little Colorado..	1.75	1,076.52	.....	.....	5 a. m....	6 a. m....	0.45	A wide river bottom; grass, wood, and water abundant.
No. 5.....	11.25	1,087.77	34 53 10	110 05 15	6 a. m....	11 a. m...	4	Same as above.....

—Continued.

Character of country traversed between camps.	Waters between camps.	Prominent land- marks.	Game.	Indians.	Thermome- ter.		
					Sunrise.	Noon.	Sunset.
Road excellent; undulating; cedar forests; about half timber and half prairie.	Water sometimes found midway in a large pool in the rocks.	Floyd's Peak, a cone-shaped mountain, very regular and beautiful.	.....	.....	45	82	72
Rolling; road easy; forests of pine and cedar; grass abundant.	62	83	68
Descending; timber abundant and grass.	45	67	58
Level road; grass abundant; cedar and pine in forests 3 to 4 miles to left of road.	At Pass Dornin very high bluff and range to right of road.	Big horns, antelope, a few wild turkeys & deer.	.....	47	75	65
Undulating; abundance of cedar and pine. Near No. 20, and throughout this section, abundance of limestone. Country rolling; grass abundant.	A small spring to left of road, one mile east of No. 20.	.....	A few bear..	Wallupi	51	81	79
Country rolling; road good; grass abundant; but little timber; a few cedars.	66	74	72
Descending the same cañon; road good; grass plenty. Timber, mesquite, cotton-wood and willow.	Two miles west, right of road, excellent camp. Abundance of water at Truxton's spring.	.....	.....	Yampas	46	72	62
Road ascending; good; but little wood; grass plenty.	42	76	61
Undulating. Cedar in abundance, and grass.	54	65	60
Country undulating. Grass abundant, and abundance of cedar.	55	79	67
Country undulating. Pass a small creek not always containing water; a few cotton-wood on it. Grass abundant.	60	79	66
Country rolling. Grass abundant; wood scarce, excepting greasewood.	62	73	65
Country descending. Soil sandy; grass plenty; wood scarce.	Antelope, deer, elk, a few wild turkeys, ducks, and quail; and beaver in the river.	Ganotoseros ..	53	83	77
Level; somewhat sandy	A high bluff on the right, close to which the road passes.	.....	.....	58	84	76
Level; river bottom; wood, water, and grass abundant.	55	72	61
Same as above.....	San Francisco mnt. in sight, bearing nearly west. Generally cap'd with snow.	.....	.....	51	79	71

Camp.	Viameter distance in miles.		Latitude.	Longitude.	Time of departure from camp.	Time of arrival at camp.	Hours marching.	Character of country in vicinity of camps.
	Last camp.	Ft. Smith.						
No. 6.....	18.50	1,106.27	34 58 30	110 18 30	5.30 a.m.	3 p.m....	7	A wide river bottom; grass, wood, and water abundant.
No. 7.....	10.17	1,116.44	34 58 20	110 28 05	6 a.m....	9 a.m....	3.30	Same as above.....
No. 8.....	13.25	1,129.69	35 06 17	110 37 54	5.30 a.m.	1 p.m....	5	Same as above.....
Cañon Diablo...	19.35	1,149.04	35 17 50	110 52 58	5.30 a.m.	2.30 p.m.	7	Same as above.....
Walnut Creek...	14.75	1,163.79	35 18 27	111 06 04	5 a.m....	12.30 p.m.	5	Stony; abundant grass; timber on the Creek Walnut.
Near Cosnino Caves.	13.50	1,177.29	35 15 58	111 20 30	5.30 a.m.	12 m.	5	Water abundant; always deep pool $\frac{1}{2}$ mile below road; timber and grass abundant.
Near San Francisco Spring.	17.32	1,194.61	35 13 02	111 32 15	11 a.m....	2 p.m....	6.30	Fine valley surrounded by pine forests and a mountainous region; grass abundant.
No. 22.....	9.75	1,349.81	35 26 01	113 43 32	5.30 a.m.	10 a.m....	4	Gabriel's Spring; a few hackberry trees; plenty of grass and wood.
Via's Spring....	13.95	1,363.76	35 21 38	113 56 17	6 a.m....	10.30 a.m.	5	In a ravine; grass scarce at spring; abundant a mile from it; wood plenty.
Armistead's Cr'k	16.75	1,380.51	35 13 26	114 08 20	10 a.m....	2 p.m....	6	A fine spring and small stream; wood sufficient, and grass.
Bishop's Spring.	3.25	1,383.76	.....	.....	10 a.m....	11.30 a.m.	1.30	Two large springs; grass tolerable, and greasewood for fuel.
Saavedra's Spr'g.	4.00	1,387.76	35 09 12	114 11 25	6 a.m....	11.30 a.m.	1.30	Small spring; grass scarce; sufficient wood; small willows and a few cedars.
No. 25.....	13.25	1,401.01	35 05 25	114 16 30	8 a.m....	12 m.	5	No wood, water, nor grass..
Spring	8.75	1,409.76	35 02 08	114 22 36	10 a.m....	11 a.m....	3	Several springs; grass scarce; a few willows and greasewood for fuel.
No. 26.....	1.25	1,411.01	35 02 56	114 23 17	8 a.m....	10.30 a.m.	0.30	A bad camp, now unnecessary, as the road over the mountain has been rendered excellent.
No. 27.....	3.17	1,414.18	35 03 39	114 25 42	9 a.m....	9.30 a.m.	1.30	A small spring to left of road; but little grass; a few cedars.
No. 28.....	1.25	1,415.43	35 04 11	114 26 10	8 a.m....	9.30 a.m.	0.30	Very little grass; no water nor timber.
No. 29.....	3.11	1,418.54	35 05 56	114 28 25	10 a.m....	9.15 a.m.	1.15	Near Colorado river; two miles off.
East Bank.....	3.25	1,421.79	35 04 27	114 31 19	.....	11.15 a.m.	1.15	Wood, water, and grass abundant.
West Bank .....	.....	.....	35 04 58	114 32 41	.....	.....	.....	.....

—Continued.

Character of country traversed between camps.	Water passed be- tween camps.	Prominent land- marks.	Game.	Indians.	Thermome- ter.		
					Sunrise.	Noon.	Sunset.
Level; river bottom; wood, water, and grass abundant.					47	72	63
Same as above.					38	72	59
Same as above.					59	72	64
Ascending gradually, undulating; find eight miles stony in parts; otherwise, road good.		Three small buttes near the mouth of the cañon Diablo, where it enters the Little Colo- rado; 7 miles, extinct volca- no; 3 miles to right.			42	85	63
Country ascending; road excel- lent; surface rolling. Pine and cedar abundant; also grass.				Cosminos...	42	85	60
Ascending; road good; surface un- dulating. Pine forests and grass abundant.	8 miles, water 3 miles left of road.				61	71	62
Ascending; pine forests; road good.					62	83	71
Road ascending; a little sandy...					44	68	60
Undulating; crossing a wide val- ley.	To left of road, mid- way, about six miles off, large mountain, called Harry Edwards, containing abun- dant of pine, grass, and water.	Directly opposite Via's Spring, 15 miles off Mts Benton and Buchanan.		Diggers....	57	69	58
Undulating; grass sufficient; no timber; greasewood.					44	72	72
Descending; sandy; part of road through deep cañon.					43	70	68
First half descending; crossing wide valley; road sandy; no timber or grass.					58	78	60
Road sandy		Murray's Peak, a high cone- shaped moun- tain in the Col- orado range.			55	73	57
Ascending to foot of Colorado range. But little grass; a few cedars.					50	68	53
Crossing the Colorado range over an excellent mountain road.					56	69	49
Descending; road good; water by digging near a small grove of cotton-wood.					60	71	56
Road good; descending slightly...					65	77	59
Descending plain					69	80	60
			Beav'r abun- dant in the Colorado.		71	82	61
Colorado river.				Mojaves...	71	81	60

